



REPLACEMENT
SHEET

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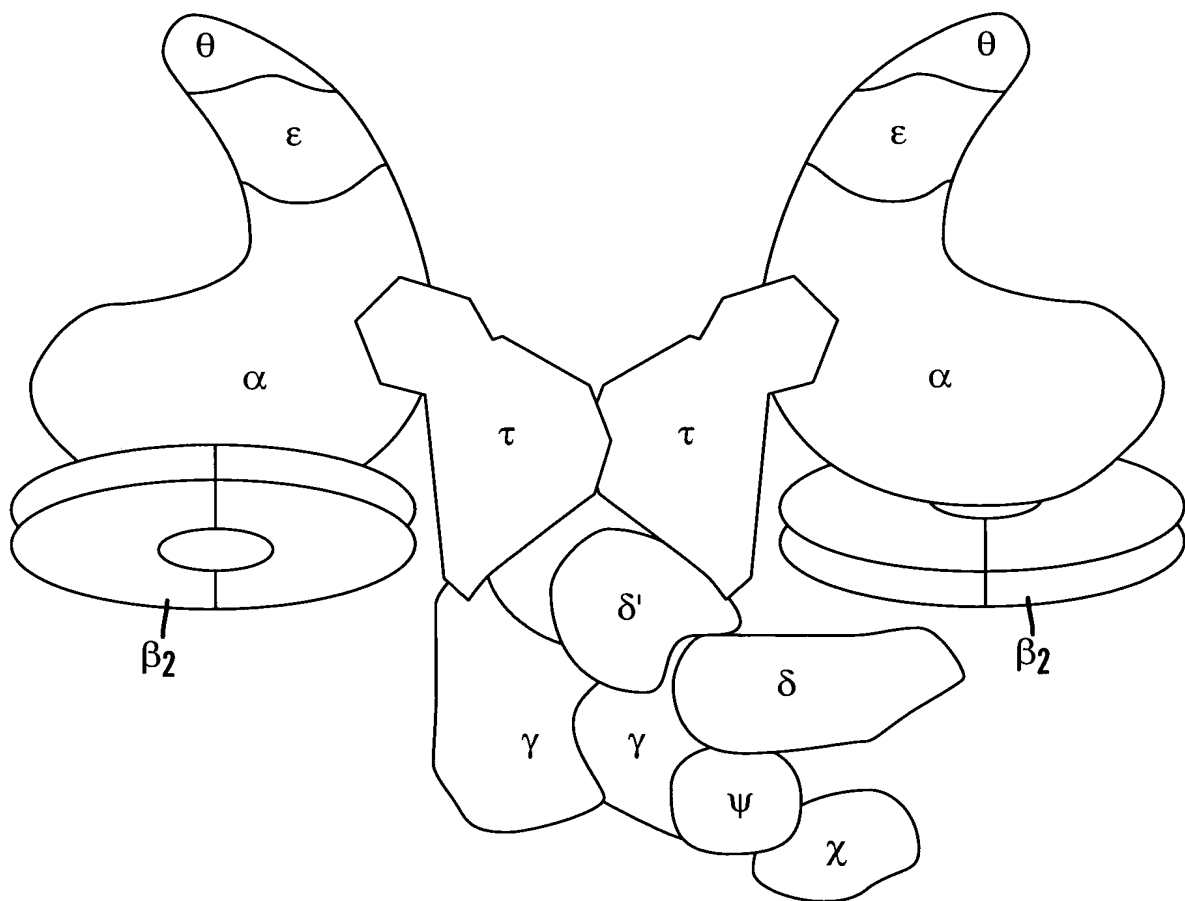


FIG. 1

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ATP binding

E. coli	MSYQVLARKWRPQTFADVVGQEHVLTALANGLSLGRIH HAYLFSGTR GVGKTSIARLLAK
B. subtilis	MSYQALYRVFRPQRFEDVVGQEHITKTLQNALLQKKFS HAYLFSGPR GTGKTSAAKIFAK
	*** * * * * . * * * . * * * * * * * * * * * * * * * . . **
E. coli	GLNCETGITATPCGVCDNCREIEQGRFVDLIEIDAASRTKVEDTRDLLDNVQYAPARGRF
B. subtilis	AVNCEHAPVDEPCNECAACKGITNGSISDVIEIDAASNNGVDEIRDIRDKVKFAPSAVTY
	. *** .
E. coli	KVYLIDEVHMLSRHSFNALL KTLEEPPEH VVKFLLATDPQKL PVTILSRCLQFHLKALDV
B. subtilis	KVYIIDDEVHMLSIGAFNALL KTLEEPPEH CIFILATTEPHKIPLTIIISRCQRFDFKRITS
	*** . ***** . ***** .

FIG. 2

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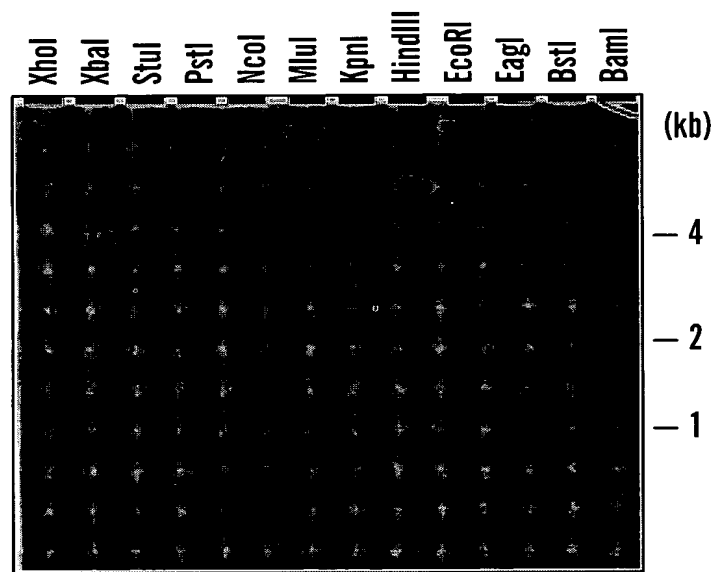


FIG. 3

REPLACEMENT SHEET

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TCCGGGGGTG	GGGTTCACAG	GTAGACCCCG	GCCCCCTCCG	TGAGCCCCCTT	TACCCAGGCC	60
GCCACCTCCT	CCAGGGGGGC	CAAGCGGTGC	AAGGAGAGGA	ACGTCCGCAC	CACGCCCTAT	120
ACTAGCCTT	GTG AGC GCC CTC TAC CGC CGC TTC CGC CCC CTC ACC TTC CAG GAG GTG GTG				S.D.	180
	met ser ala leu tyr arg phe arg pro leu thr phe gln glu val val					(17)
GGG CAG GAG CAC GTG AAG GAG CCC CTC CTC AAG GCC ATC CGG GAG GGG AGG CTC GCC CAG					CAC	240
gly gln glu his val lys glu pro leu leu lys ala ile arg glu gly arg leu ala gln						(37)
GCS TAC CTS TTC TCC GGS AC						
GCC TAC CTC TTC TCC GGG CCC AGG GGC GTG GGC AAG ACC ACC ACC GCG AGG CTC CTC GCC						300
ala tyr leu phe ser gly pro arg gly val gly lys thr thr thr ala arg leu leu ala						(57)
ATG GCG GTG GGG TGC CAG GGG GAA GAC CCC CCT TGC GGG GTC TGC CCC CAC TGC CAG GCG						360
met ala val gly cys gln gly glu asp pro pro cys gly val cys pro his cys gln ala						(77)
GtG CAG AGG GGC GCC CAC CCG GAC GTG GTG GAC ATT GAC GCC GCG AGC AAC AAC TCC GTG						420
val gln arg gly ala his pro asp val val asp ile asp ala ala ser asn ser val						(97)
GAG GAC GTG CGG GAG CTG AGG GAA AGG ATC CAC CTC GCC CCC CTC TCT GCC CCC AGG AAG						480
glu asp val arg arg glu leu arg glu arg ile his leu ala pro leu ser ala pro arg lys						(117)
GTC TTC ATC CTG GAC GAG GCC CAC ATG CTC TCC AAA AGC GCC TTC AAC GCC CTC CTC AAG					C	540
val phe ile leu asp Glu ala his met leu ser lys ser ala phe asn ala leu leu lys						(137)

FIG. 4A-1

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FIG. 4A-2

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GAG CGC CTC GCC CGC CGC TCC GAC GCC TTA AGC CTG GAG GTG GCC CTC CTG GAG GCG GGA	1140
glu arg leu ala arg arg ser asp ala leu ser leu glu val ala leu glu ala gly	(337)
AGG GCC CTG GCC GAG GCC CTA CCC CAG CCC ACG GGC GCT CCT TCC CCA GAG GTC GGC	1200
arg ala leu ala ala glu ala leu pro gln pro thr gly ala pro ser pro glu val gly	(357)
CCC AAG CCG GAA AGC CCC CCG ACC CCG GAA CCC CCA AGG CCC GAG GCG CCC GAC CTG	1260
pro lys pro glu ser pro pro thr pro glu pro arg pro arg pro glu ala pro asp leu	(377)
CGG GAG CGG TGG CGG GCC TTC CTC GAG GCC CTC AGG CCC ACC CTA CGG GCC TTC GTG CGG	1320
arg glu arg trp arg ala phe leu glu ala leu arg pro thr leu arg ala phe val arg	(397)
GAG GCC CGC CCG GAG GTC CGG GAA GGC CAG CTC TGC CTC GCT TTC CCC GAG GAC AAG GCC	1380
glu ala arg pro glu val arg glu gly gln leu cys leu ala phe pro glu asp lys ala	(417)
TTC CAC TAC CGC AAG GCC TCG GAA CAG AAG GTG AGG CTC CTC CCC CTG GCC CAG GCC CAT	1440
phe his tyr arg lys ala ser glu gln lys val arg leu leu pro leu ala gln ala his	(437)
frameshift site	
TTC GGG GTG GAG GAG GTC CTC CTC GAG GGA GAA AAA AAA AGC CTG AGC CCA AGG	1500
phe gly val glu glu val leu val leu glu gly glu lys lys ser leu ser pro arg	(457)

FIG. 4B-1

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CCC CGC CCG GCC CCA CCT CCT GAA GCG CCC GCA CCC CCG GGC CCT CCC GAG GAG GAG GTA	1560
pro arg pro ala pro pro pro pro glu ala pro ala pro pro gly pro pro glu glu val	(477)
GAG GCG GAG GAA GCG GCG GAG GAG GCG CCC GCG GAG GCG TTT AGG CCG GTG GTC CGC CTC	1620
glu ala glu glu ala ala glu glu ala pro glu glu ala leu arg val val arg leu	(497)
CTG GGG GGG CCG GTG CTC TGG GTG CCG GCG GCG GAG GCG CCG GAG GAG GAA	1680
leu gly gly arg val leu trp val arg arg pro arg thr arg glu ala pro glu glu	(517)
CCC CTG AGC CAA GAC GAG ATA GGG GGT ACT GGT ATA TAA TGGGGGCATG ACGGGACCAC	1740
pro leu ser gln asp glu ile gly gly thr thr gly ile *	(529)
CGACCTCGGA CAAGAGACCG TGGACAACAT CCTCAAGCGC CTCCGCCCGTA TTGAGGGGCA	1820
GGTGCGGGGG CTCAGAGA TGGTGGCCGA GGGCCGCCCC TGCACGAGG TCCTCACCCA	1880
GATGACCGCC ACCAAGAAG CCATGGAGGC GGCGGCCACC CTGATCCCTCC ACGAGTTCTT	1940
GAACGTCTGC GCCGCCGAGG TCTCCGAGGG CAAGGTGAAC CCGAGGAGAT	2000
CGCCACCATG CTGAAGAACT TCATCTA	2027

FIG. 4B-2

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FIG. 4C

REPLACEMENT SHEET

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Met	ser	ala	leu	tyr	arg	arg	pro	leu	thr	phe	gln	gln	val	val	gln	glu	20
his	val	lys	glu	pro	leu	lys	ala	ile	arg	glu	gly	ala	gln	ala	tyr	leu	40
phe	ser	gly	pro	arg	gly	val	lys	thr	thr	ala	arg	ala	leu	ala	met	ala	60
gly	cys	gln	gly	glu	asp	pro	cys	gly	val	cys	pro	his	cys	gln	ala	val	80
gly	ala	his	pro	asp	val	val	ile	asp	ala	ala	ser	asn	ser	val	glu	asp	100
arg	glu	leu	arg	glu	arg	ile	his	leu	pro	leu	ser	ala	pro	arg	lys	phe	120
leu	asp	glu	ala	his	met	leu	ser	lys	ala	phe	asn	ala	leu	leu	lys	thr	140
glu	pro	pro	pro	his	val	leu	phe	val	ala	thr	thr	glu	pro	glu	arg	met	160
thr	ile	leu	ser	arg	thr	gln	his	phe	arg	phe	arg	leu	thr	glu	glu	ile	180
phe	lys	leu	arg	arg	ile	leu	glu	ala	val	gly	arg	glu	ala	glu	ala	leu	200
leu	leu	ala	arg	leu	ala	asp	gly	ala	leu	arg	asp	ala	glu	ser	leu	leu	220
leu	leu	leu	glu	gly	pro	leu	thr	arg	lys	glu	val	glu	ala	leu	gly	ser	240
gly	thr	gly	val	ala	glu	ile	ala	ala	ser	leu	ala	arg	lys	thr	ala	glu	260
gly	leu	ala	arg	arg	leu	tyr	gly	leu	tyr	ala	phe	gly	leu	ala	gly	thr	280
leu	glu	val	phe	arg	glu	gly	leu	ala	ala	met	thr	ala	leu	asp	glu	ala	300
ala	pro	pro	gln	ala	leu	ile	ala	ala	leu	glu	ala	leu	leu	ala	met	glu	320
ala	arg	arg	ser	asp	ala	leu	ser	leu	glu	val	ala	leu	ala	ala	gly	arg	340
ala	ala	glu	ala	leu	pro	gln	pro	thr	gly	ala	pro	ser	glu	val	gly	pro	360
glu	ser	pro	pro	thr	pro	glu	pro	pro	arg	pro	glu	ala	pro	asp	leu	arg	380
trp	arg	ala	phe	leu	glu	ala	leu	arg	pro	thr	leu	arg	ala	phe	val	arg	400
pro	glu	val	arg	glu	gly	gln	lys	val	leu	ala	phe	pro	glu	asp	lys	ala	420
arg	lys	ala	ser	glu	gln	lys	val	arg	leu	leu	pro	leu	ala	gln	ala	his	440
glu	glu	val	val	leu	val	leu	glu	gly	glu	lys	lys	ser	leu	ser	pro	arg	460
ala	pro	pro	pro	glu	ala	pro	ala	pro	gly	pro	pro	glu	glu	val	glu	ala	480
glu	ala	ala	glu	glu	ala	pro	glu	glu	ala	leu	arg	val	val	arg	leu	leu	500
arg	val	leu	trp	val	arg	arg	pro	arg	thr	arg	glu	ala	pro	glu	glu	pro	520
gln	asp	glu	ile	gly	gly	thr	gly	ile									529

FIG. 4D

REPLACEMENT SHEET

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Met	ser	ala	leu	tyr	arg	arg	pro	leu	thr	phe	gln	glu	val	val	gln	ala	gly	gln	glu	20
his	val	lys	glu	pro	arg	leu	ile	arg	thr	gly	arg	leu	ala	ala	tyr	ala	ala	tyr	leu	40
phe	ser	gly	pro	arg	gly	leu	thr	thr	thr	ala	arg	leu	leu	ala	met	ala	val	ala	val	60
gly	cys	gln	gly	glu	asp	pro	val	val	cys	pro	his	cys	gln	ala	val	gln	arg	arg	arg	80
gly	ala	his	pro	asp	val	val	asp	ile	ala	ala	asn	ser	ser	val	glu	asp	val	val	100	
arg	glu	leu	arg	glu	arg	ile	his	leu	pro	ser	ala	pro	arg	lys	val	phe	ile	ile	120	
leu	asp	glu	ala	his	met	leu	ser	lys	ala	asn	ala	leu	leu	lys	thr	leu	glu	glu	140	
glu	pro	pro	pro	his	val	leu	phe	ala	thr	thr	glu	pro	glu	arg	met	pro	pro	pro	160	
thr	ile	leu	ser	arg	thr	gln	his	phe	arg	arg	leu	thr	glu	glu	glu	ile	ala	ala	180	
phe	lys	leu	arg	arg	ile	leu	gln	val	arg	glu	ala	glu	glu	glu	ala	leu	leu	leu	200	
leu	leu	ala	arg	leu	ala	asp	leu	arg	asp	ala	glu	ser	leu	leu	glu	arg	phe	phe	220	
leu	leu	leu	glu	gly	pro	leu	ile	lys	val	glu	arg	ala	leu	leu	gly	ser	pro	pro	240	
gly	thr	gly	val	ala	glu	ile	ala	ser	ala	arg	gly	lys	thr	ala	glu	ala	ala	leu	260	
gly	leu	ala	arg	arg	leu	tyr	tyr	gly	ala	pro	arg	ser	leu	val	ser	gly	leu	leu	280	
leu	glu	val	phe	arg	glu	gly	ala	ala	phe	gly	leu	ala	gly	thr	pro	leu	pro	pro	300	
ala	pro	pro	gln	ala	leu	ile	met	thr	ala	leu	asp	glu	ala	met	glu	arg	leu	leu	320	
ala	arg	arg	ser	asp	ala	leu	glu	val	ala	leu	leu	glu	ala	gly	arg	ala	leu	leu	340	
ala	ala	glu	ala	leu	thr	gln	gly	ala	pro	ser	pro	glu	val	gly	pro	lys	pro	pro	360	
glu	ser	pro	pro	thr	pro	pro	pro	arg	glu	ala	ala	pro	asp	leu	arg	glu	arg	arg	380	
trp	arg	ala	phe	leu	leu	ala	pro	arg	thr	leu	arg	phe	val	arg	glu	ala	arg	arg	400	
pro	glu	val	arg	glu	gly	gln	lys	leu	phe	pro	glu	asp	lys	ala	phe	his	tyr	tyr	420	
arg	lys	ala	ser	glu	gln	lys	val	arg	leu	pro	leu	ala	ala	his	phe	gly	val	val	440	
glu	glu	val	val	leu	val	leu	glu	gly	lys	lys	lys	pro	asp	pro	lys	ala	pro	pro	460	
gly	pro	thr	ser																464	

FIG. 4E

REPLACEMENT SHEET

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Met	ser	ala	leu	tyr	arg	arg	arg	pro	leu	thr	phe	gln	glu	val	gln	ala	met	ala	val	gln	arg	20
his	val	lys	gly	pro	leu	leu	leu	ile	arg	thr	gly	arg	leu	ala	gln	ala	tyr	leu	leu	leu	40	
phe	ser	gly	pro	arg	gly	asp	val	thr	thr	thr	ala	arg	leu	leu	ala	met	ala	val	ala	val	60	
gly	cys	gln	gly	glu	asp	pro	pro	gly	val	cys	pro	his	cys	gln	ala	val	gln	arg	arg	arg	80	
gly	ala	his	pro	asp	val	val	asp	ile	asp	ala	ala	ser	asn	ser	val	glu	asp	val	val	val	100	
arg	glu	leu	arg	glu	arg	ile	his	leu	ala	pro	leu	ser	ala	pro	arg	lys	val	phe	ile	ile	120	
leu	asp	glu	ala	his	met	leu	ser	lys	ser	ala	phe	asn	ala	leu	leu	lys	thr	leu	glu	glu	140	
glu	pro	pro	pro	his	val	leu	phe	val	ala	thr	thr	glu	pro	glu	arg	met	pro	pro	pro	pro	160	
thr	ile	leu	ser	arg	thr	gln	his	arg	phe	arg	arg	leu	thr	glu	glu	glu	ile	ala	ala	ala	180	
phe	lys	leu	arg	arg	ile	leu	glu	ala	gly	arg	glu	ala	glu	glu	glu	ala	leu	leu	leu	leu	200	
leu	leu	ala	arg	leu	ala	asp	gly	ala	arg	asp	ala	glu	ser	leu	leu	glu	arg	phe	phe	phe	220	
leu	leu	leu	gly	val	pro	leu	thr	lys	glu	val	glu	arg	ala	leu	thr	gly	ser	pro	pro	pro	240	
gly	thr	gly	val	ala	glu	ile	ala	ser	leu	ala	arg	gly	lys	thr	ala	glu	ala	leu	leu	leu	260	
gly	leu	ala	arg	arg	leu	tyr	gly	gly	tyr	ala	pro	arg	ser	leu	val	ser	gly	leu	leu	leu	280	
leu	glu	val	phe	arg	glu	glu	leu	ala	ala	phe	gly	leu	ala	gly	thr	pro	leu	pro	pro	pro	300	
ala	pro	pro	gln	ala	leu	ile	ala	met	thr	ala	leu	asp	glu	ala	met	glu	arg	leu	leu	leu	320	
ala	arg	arg	ser	asp	ala	leu	ser	leu	val	ala	leu	leu	glu	ala	gly	arg	ala	leu	leu	leu	340	
ala	ala	glu	ala	leu	pro	gln	pro	gly	ala	pro	ser	pro	glu	val	gly	pro	lys	pro	pro	pro	360	
glu	ser	pro	pro	thr	pro	glu	pro	arg	pro	glu	glu	ala	pro	asp	leu	arg	glu	arg	arg	arg	380	
trp	arg	ala	phe	leu	glu	ala	leu	pro	thr	leu	arg	ala	phe	val	arg	glu	ala	arg	arg	arg	400	
pro	glu	val	arg	glu	gly	gln	lys	leu	ala	phe	pro	glu	asp	lys	ala	phe	his	tyr	tyr	tyr	420	
arg	lys	ala	ser	glu	gln	gln	lys	leu	leu	pro	leu	ala	gln	ala	his	phe	gly	val	val	val	440	
glu	glu	val	val	leu	val	val	leu	glu	lys	lys	lys	ala	ala	ala	his	phe	gly	val	val	val	454	

FIG. 4F

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	ATP site	
E.coli	MSYQVLARKWRPQTFADVVGQEHVLTALANGLSLGRHHAYLFSGTRGVGKTSIARLLAK	60
H.inf.K.....II.....KDN.L.....F.....	60
B.sub.	...A.Y.VF...R.E.....ITKT.Q.A.LQKKFS.....P.T....A.KIF..	60
C.cres.	DA.T.....Y.R..E.LI..AMVRT...AF.T..A..FMLT.V.....TT.....R	113
M.gen.	-MH..FYQ.Y..IN.KQTL...SIRKI.V.AINRDKLPNG.I..E.T...TF.KII..	59
T.th.	--VSA.Y.RF..L..QE.....KEP.LKAIRE..LAQ.....P.....TT.....M	58
	Zn ⁺⁺ finger	
	* * * *	
E.coli	GLNCET---GITATPCGVCDNCREIEQGRFVDLIEIDAASRTKVEDTRDLLDNVQYAPA	116
H.inf.	...VH----V.....E.E..KA...N.I.....E.....K.V	116
B.sub.	AV...H---APVDE..NE.AA.KG.TN.SIS.V.....NNG.DEI..IR.K.KF..S	116
C.cres.	A..Y..DTVK.PSVDLTTEGYH..S.IE..HM.VL.L.....DEM.E...G.R...V	173
M.gen.	AI..LN----WDQIDV.NS..V.KS.NTNSAI.IV.....KNGIN.I.E.VE..FNH.F	115
T.th.	AVG.QG-----EDP.....PH.QAVQR.AHP.VVD.....NNS...V.E.RERIHL..L	112
E.coli	RGRFKVYLIDEVHMLSRHSFNALLKLTLEEPPEHVKFLLATTDPPQKLPVTILSRCLQFHLK	176
H.inf.	V.....I.....IGA.....CI.I...E.H.I.L.I...QR.DF.	176
B.sub.	EA.Y...I.....TAA.....P.A..IF...EIR.V.....QR.D.R	233
M.gen.	TFKK...IL..A...TTQ.WGG.....S.PY.L.IFT..EFN.I.L.....QS.FF.	175
T.th.	SAPR..FIL..A....KSA.....P..L.VF...E.ERM.P.....TQH.RFR	172

FIG. 5A

REPLACEMENT SHEET

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E.coli	ALDVEQIRHQLEHILNEEHIAHEPRALQLLARAAEGSLRDALSLTDQAIASGDQ--VST	234
H.inf.	...ET..SQH.A...TQ.N.PF.DP..VK..K..Q..I..S.....M..R.--.TN	234
B.sub.	RITSQA.VGRMNK.VDA.QLQV.EGS.EII.S..H.GM.....L....SFSGDI--LKV	234
C.cres.	RVEPDVLVKHFDR.SAK.GARI.MD..A.I.....V..G...L....VQTERGQT.TS	293
M.gen.	KITSDL:LER.ND.AKK.K.KI.KD..IKI.DLSQ.....G...L..LAI.LIVKKL.LL	235
T.th.	R.TE.E.AFK.RR..EAVGREA.EE..L...L.D.A....E..LERFLLLEGP---LTR	229
E.coli	QAVSAMLGTLDDDDQALSLVEAMVEANGERVMA LINEAAARGIEWEALLVEMGLLHRIAM	294
H.inf.	NV..N...L...NYSVDILY.LHQG...LL.RTLQRV.DAAGD.DK..G.CAEK..Q..L	294
B.sub.	EDALLIT.AVSQLYIGK.AKSLHDK.VSDALETL..LLQQ.KDPAK.IED.IFYFRDMLL	294
C.cres.	TV.RD...LA.RS.TIA.Y.HVMAGKTKDALEGFRALWGF.ADPVVMLDV.DHC.AS.V	353
M.gen.	MLKKHLISLIEMQN.L.KQFYQ.I	260
T.th.	KE.ERA..SPPGTGVAEIAASLARGKTAELG.ARRLYGE.YAPRS.VSGL.EVVFREGLY	289

FIG. 5B

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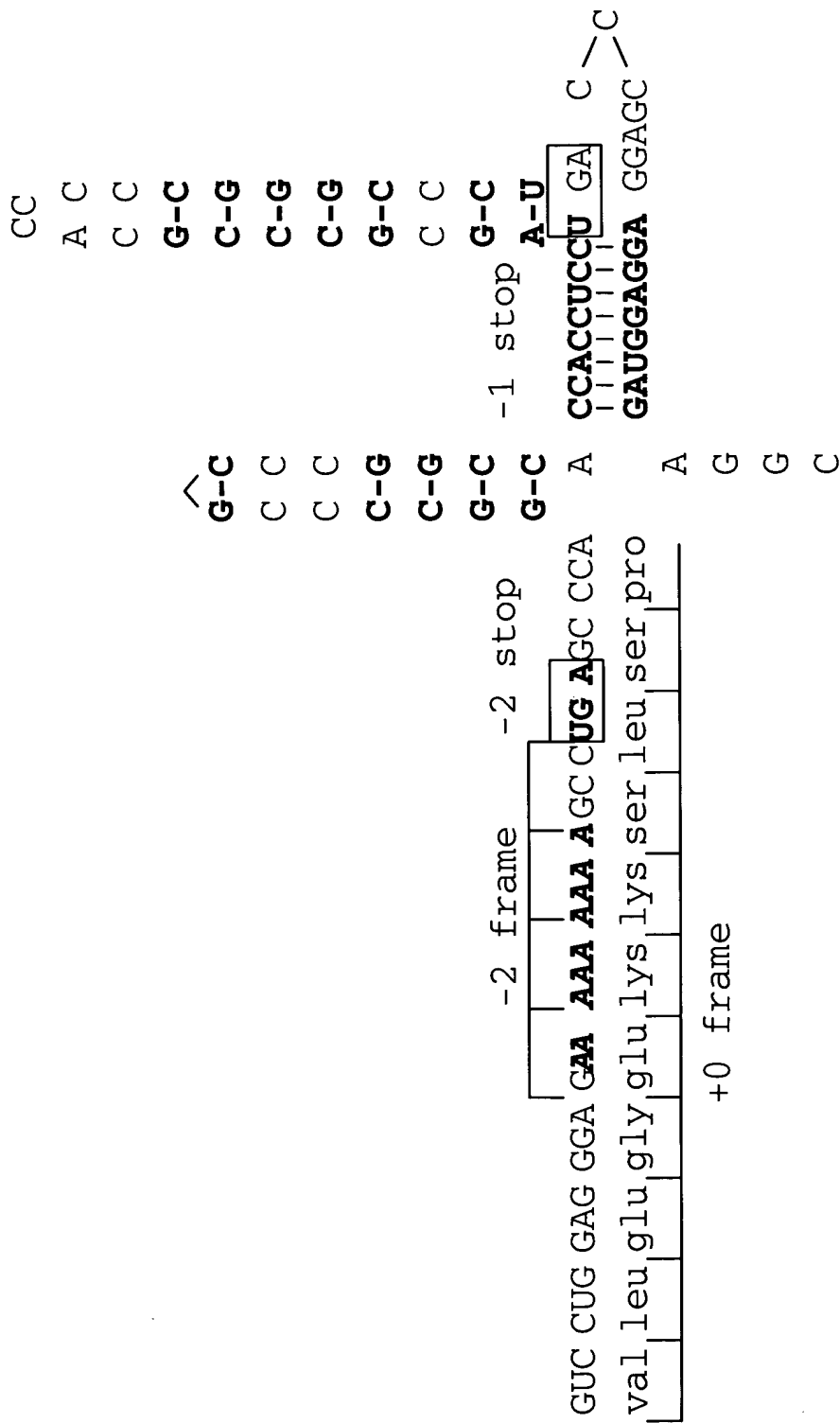


FIG. 6

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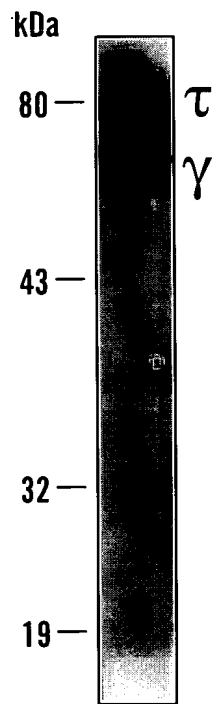


FIG. 7

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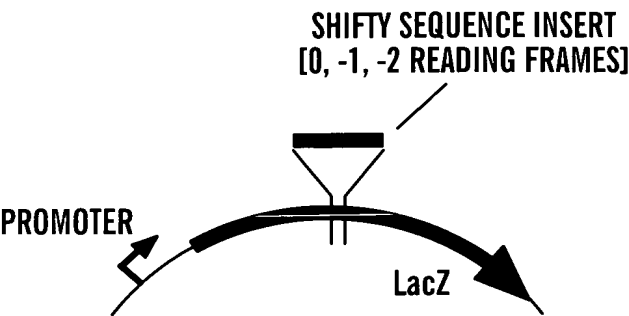


FIG. 8A

	READING FRAME	BLUE	WHITE
SHIFTY SEQUENCE	0	+	
	-1	+	
	-2	+	
MUTANT SEQUENCE	0	++	
	-1		+
	-2		+

FIG. 8B

REPLACEMENT SHEET

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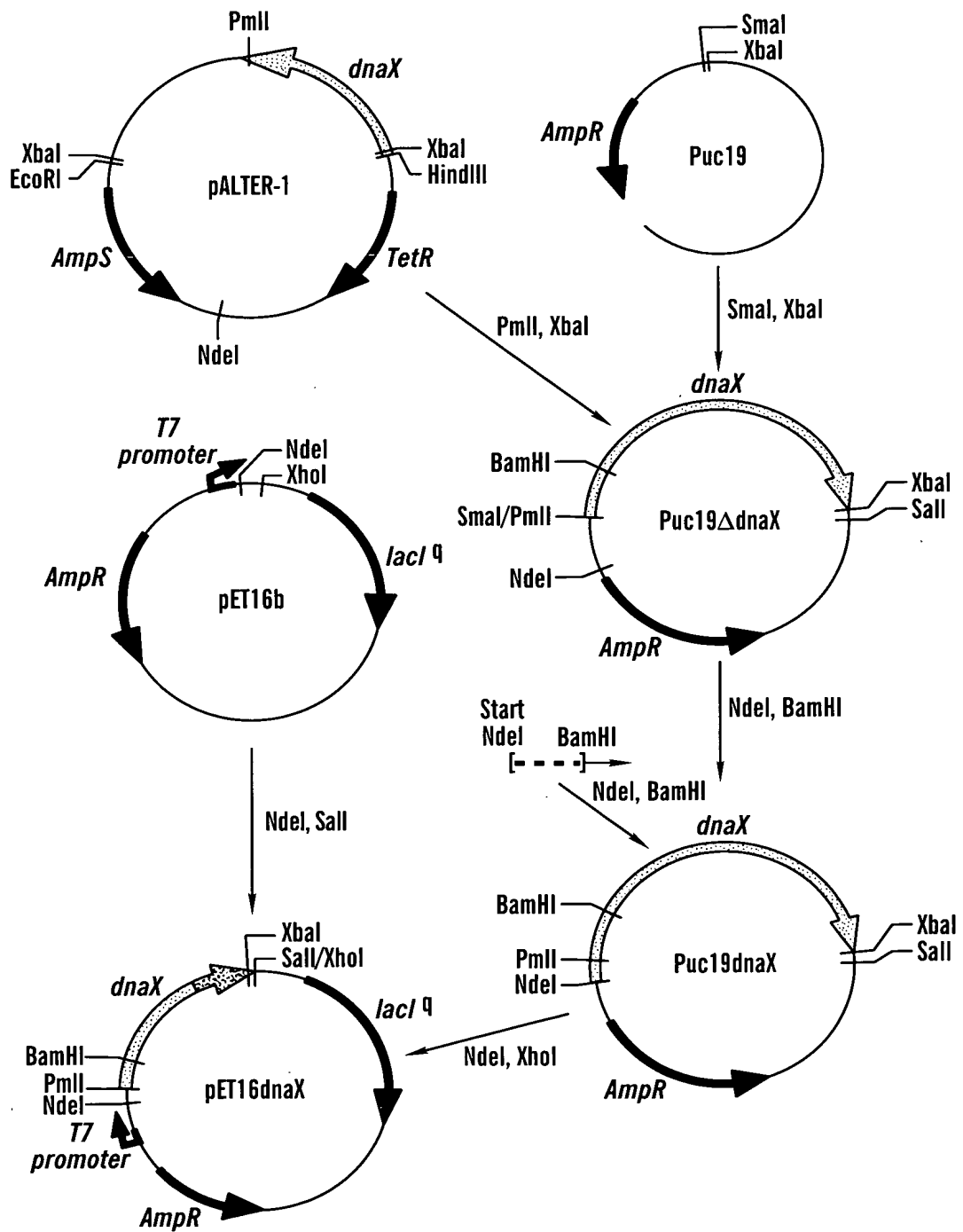
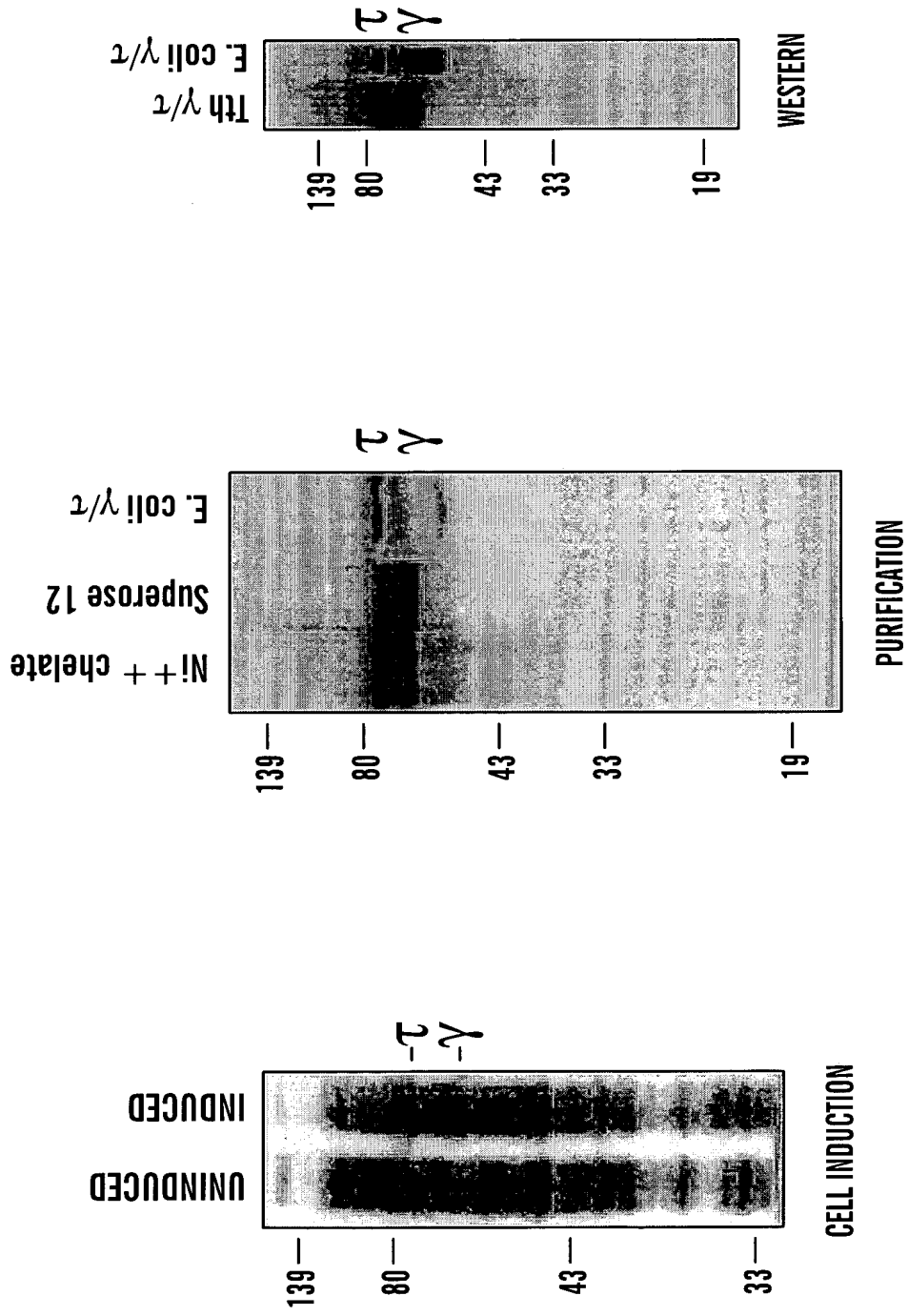


FIG. 9

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REPLACEMENT
SHEET

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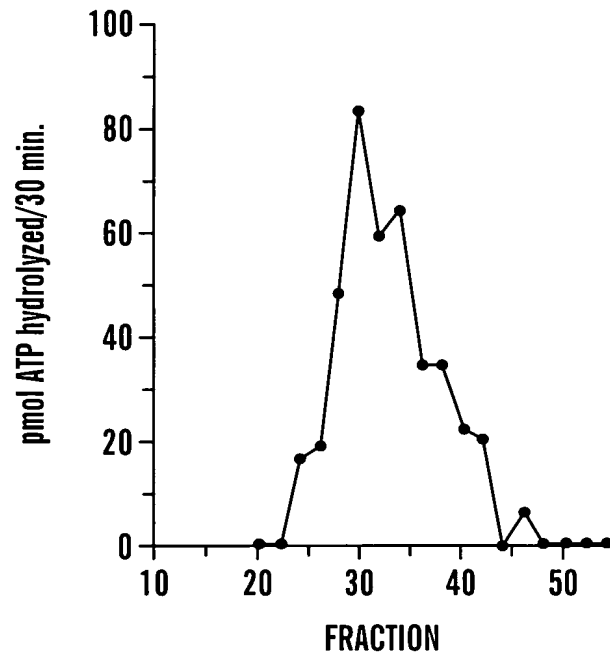


FIG. 11A

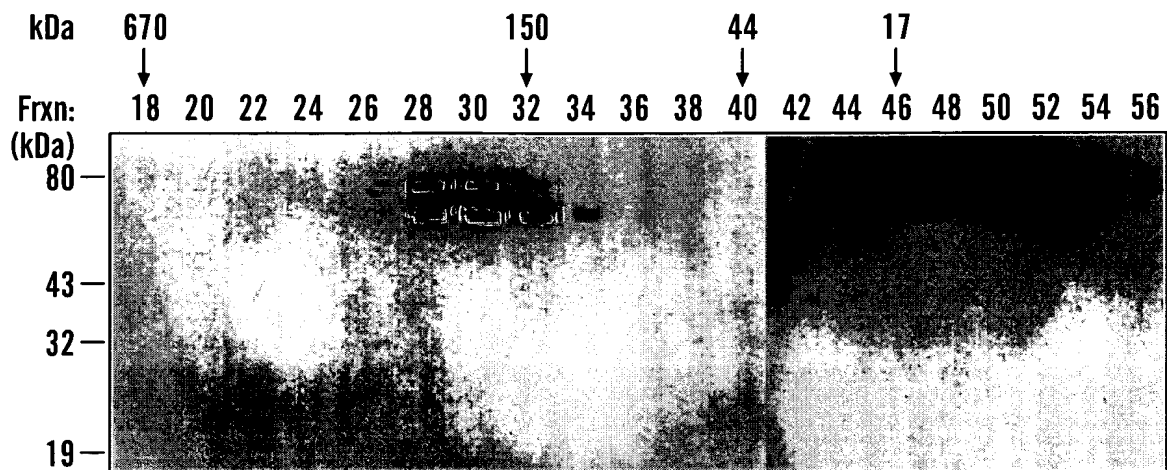


FIG. 11B

REPLACEMENT SHEET

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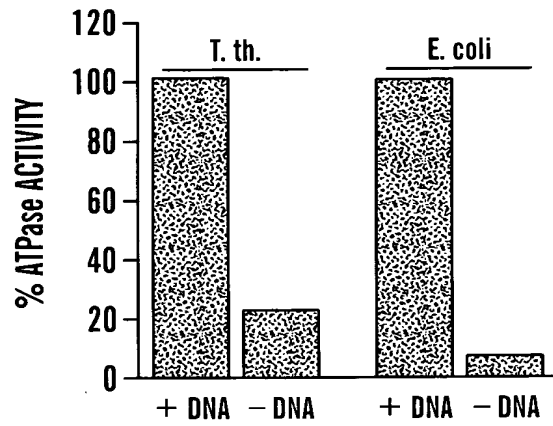


FIG. 12A

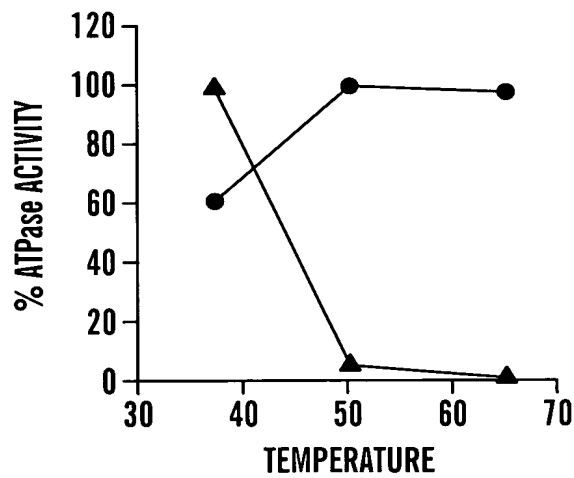


FIG. 12B

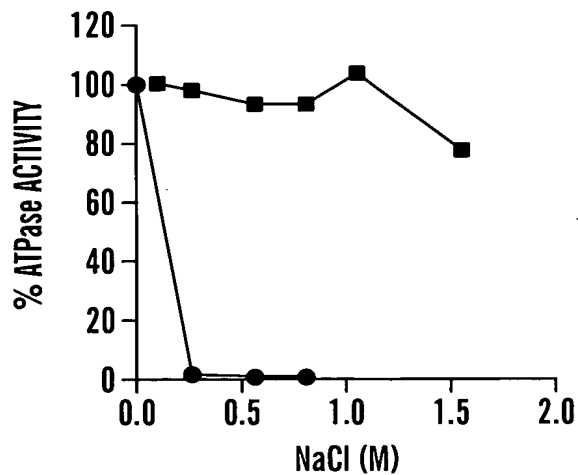


FIG. 12C

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FIG. 13A

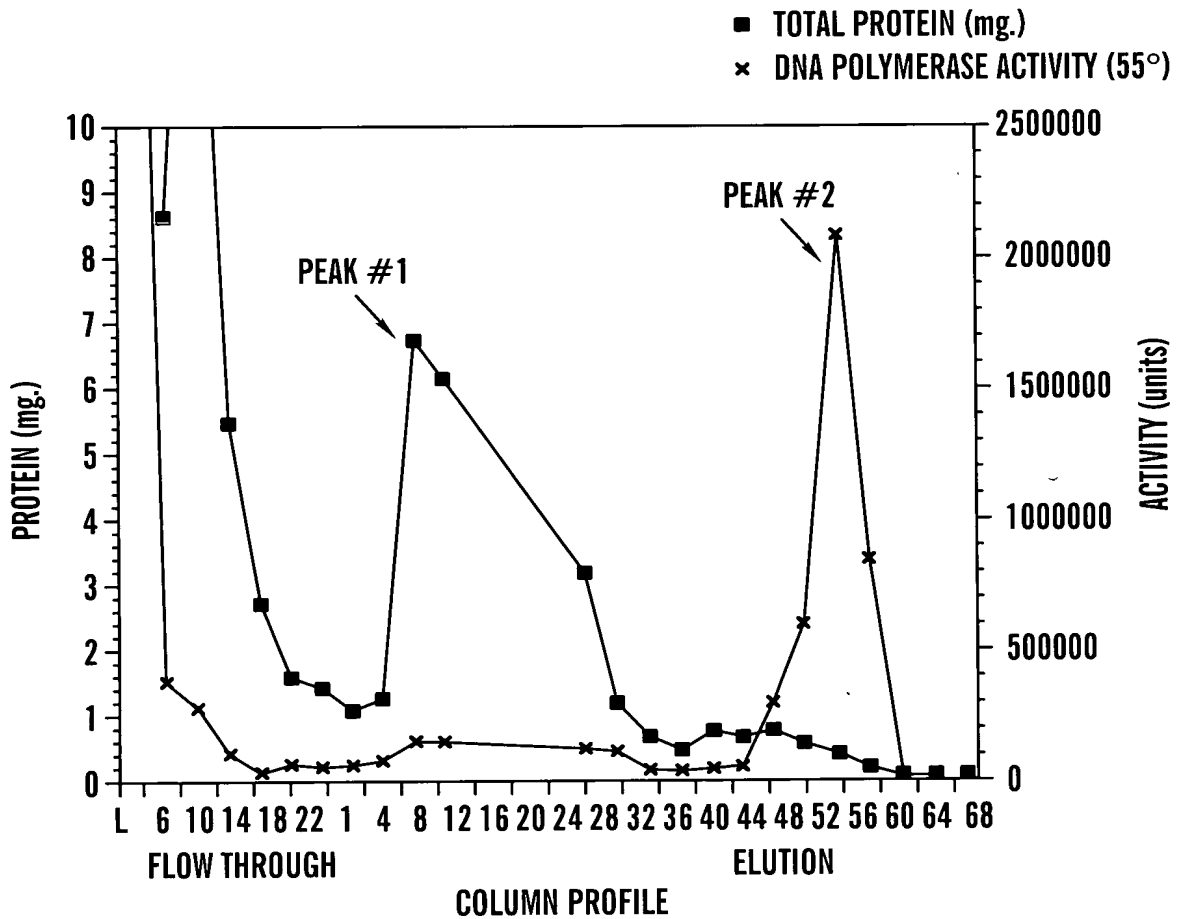


FIG. 13B

ATP AGAROSE STEP COLUMN

REPLACEMENT SHEET

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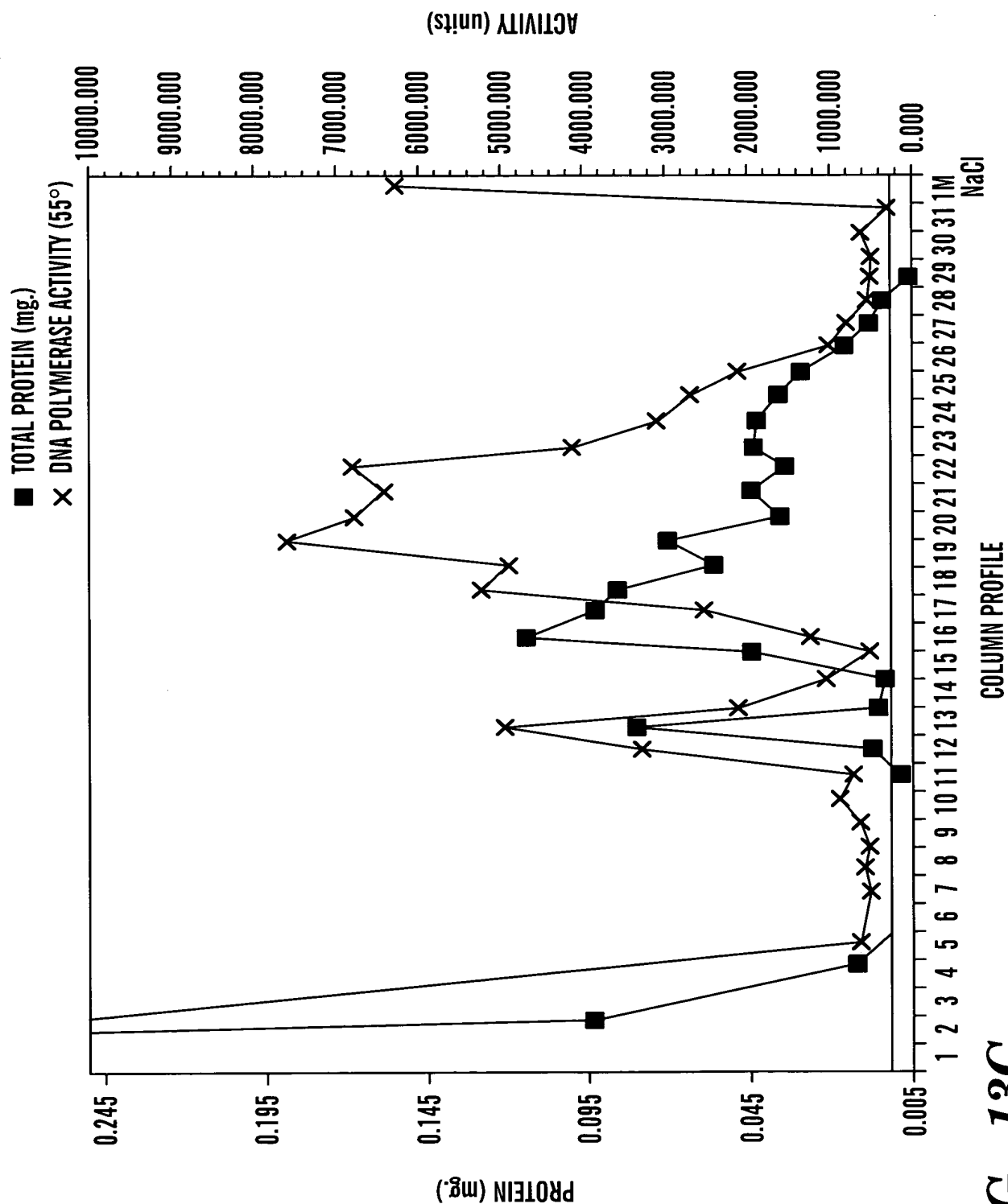


FIG. 13C

REPLACEMENT
SHEET

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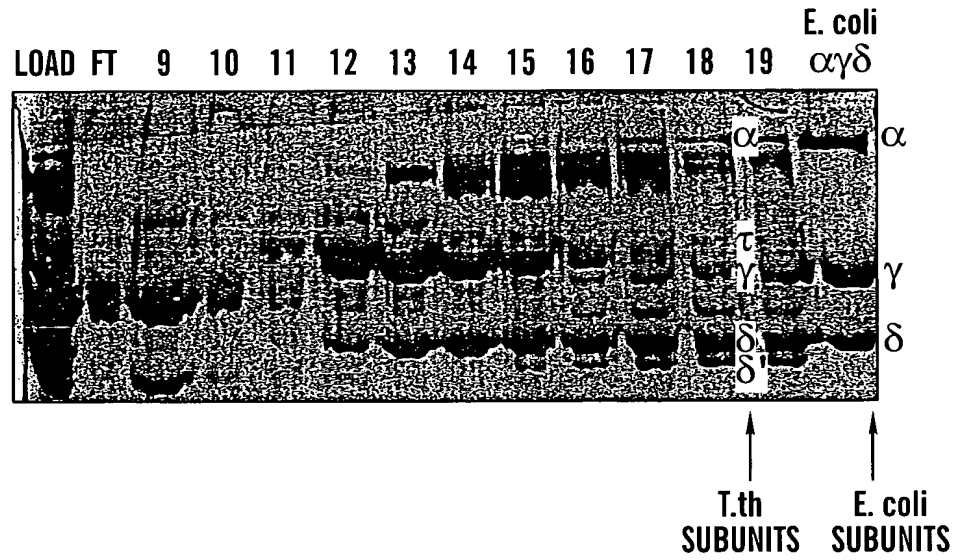


FIG. 14A

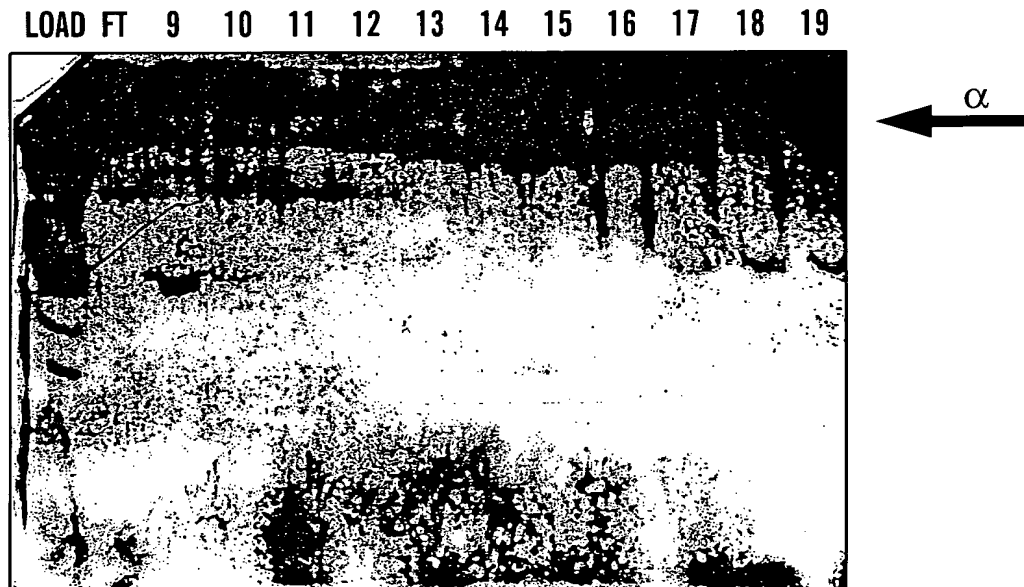


FIG. 14B

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Alignment of TTH1 with alphas subunits of other organisms.

E.coli	DRYFLELIRTGRPDEESYLHAAVELAEARGLPVV	197	(ID#72)
V.chol.	DHFYLELIRTGRADEESYLHFALDVAEQYDLPVV	197	(ID#73)
H.inf.	DHFYALASRTGRPNEERYIQAAALKLAERCDDLPLV	197	(ID#74)
R.prow.	DRFYFEIMRHDLPREEQFIENSYIQIASELSIPIV	195	(ID#75)
H.pyl.	DDFYLEIMRHGILDQRFIDEQVIKMSLETGLKII	213	(ID#76)
S.sp.	DDYYLEIQDHGSVEDRLVNINLVKIAQELDIKIV	202	(ID#77)
M.tub.	DNYFLELMDHGLTIERRVRDGLLEIGRALNIPPL	220	(ID#78)
T.th.	FFIEIQNHGLSEQK		(ID#61)

FIG. 15A

Alignment of TTH2 with alphas subunits of other organisms.

E.coli	NKRRAKNGEPPLDIAAIPLDDKKSFDMLQRSETTAVFQLESRGMKD	618	(ID#79)
V.chol.	NPRLKKAGKPPVRIEAIPLDDARSFRNLQDAKTTAVFQLESRGMKD	618	(ID#80)
H.inf.	NVRMVRGKPRVDIAAIPLDDPESFELLRSETTAVFQLESRGMKD	618	(ID#81)
R.prow.	CKLLKEQGIKIDFDDMTFDDKKTYQMLCKGKGVGVFQFESIGMKD	624	(ID#82)
H.pyl.	LKIIKTQHKISVDFLSLDMDDPKVYKTIQSGDTVGFQIES-GMFQ	648	(ID#83)
S.sp.	QERKALQIRARTGSKKLPDDVKKTHKLLLEAGDLEGFQLESQGMKQ	643	(ID#84)
M.tub.	IDNVRANRGIDLDESVPPLDDKATYELLGRGDTLGVFQLDGGPMRD	646	(ID#85)
T.th.	RVELDYDALTLDD		(ID#60)

FIG. 15B

REPLACEMENT SHEET

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ATGGGCCGGGAGCTCCGCTTCGCCCACCTCCACCAGCACA	
CCCAGTTCTCCCTCCTGGACGGGGCGGCGAAGCTTTCCGA	
CCTCCTCAAGTGGGTCAAGGAGACGACCCCCGAGGACCCC	120
GCCTTGGCCATGACCGACCACGGCAACCTCTTCGGGGCCG	
TGGAGTTCTACAAGAAGGCCACCGAAATGGGCATCAAGCC	
CATCCTGGGCTACGAGGCCTACGTGGCGGCGGAAAGCCGC	240
TTTGACCGCAAGCGGGGAAAGGGCCTAGACGGGGGCTACT	
TTACCTCACCTCCTCGCCAAGGACTTCACGGGGTACCA	
GAACCTGGTGCGCCTGGCGAGCCGGGCTTACCTGGAGGGG	360
TTTTACGAAAAGCCCCGGATTGACCGGGAGATCCTGCGCG	
AGCACGCCGAGGGCCTCATCGCCCTCTCGGGGTGCCTCGG	
GGCGGAGATCCCCCAGTTCATCCTCCAGGACCGTCTGGAC	480
CTGGCCGAGGCCCCGGCTCAACGAGTACCTCTCCATCTTCA	
AGGACCGCTTCTTTCATCGAGATCCAGAACCACGGCCTCCC	
CGAGCAGAAAAAGGTCAACGAGGTCTCAAGGAGTTCGCC	600
CGAAAGTACGGCCTGGGGATGGTGGCCACCAACGACGGCC	
ATTACGTGAGGAAGGAGGACGCCCCGCGCCACGAGGTCCT	
CCTCGCCATCCAGTCCAAGAGCACCTGGACGACCCCGGG	720
CGCTGGCGCTTCCCCTGCGACGAGTTCTACGTGAAGACCC	
CCGAGGAGATGCGGGCCATGTTCCCCGAGGAGGAGTGGGG	
GGACGAGCCCTTTGACAACACCGTGGAGATCGCCCGCATG	840
TGCAACGTGGAGCTGCCCATCGGGGACAAGATGGTCTACC	
GAATCCCCCGCTTCCCCCTCCCCGAGGGGCGGACCGAGGC	
CCAGTACCTCATGGAGCTCACCTTCAAGGGGCTCCTCCGC	960
CGTACCCCGGACCGGATCACCGAGGGCTTCTACCGGGAGG	
TCTTCCGCCTTTTGGGGAAGCTTCCCCCCCCACGGGGACGG	
GGAGGCCTTGGCCGAGGCCTTGGCCCAGGTGGAGCGGGAG	1080
GCTTGGGAGAGGCTCATGAAGAGCCTCCCCCCTTTGGCCG	
GGGTCAAGGAGTGGACGGCGGAGGCCATTTTCCACCGGGC	
CCTTTACGAGCTTTCCGTGATAGAGCGCATGGGGTTTCCC	1200
GGCTACTTCCTCATCGTCCAGGACTACATCAACTGGGCCC	
GGAGAAACGGCGTCTCCGTGGGGCCCCGGCAGGGGGAGCGC	
CGCCGGGAGCCTGGTGGCCTACGCCGTGGGGATCACCAAC	1320
ATTGACCCCCCTCCGCTTCGGCCTCCTCTTTGAGCGCTTCC	
TGAACCCGGAGAGGGTCTCCATGCCCGACATTGACACGGA	
CTTCTCCGACCGGGAGCGGGACCGGGTGATCCAGTACGTG	1440
CGGGAGCGCTACGGCGAGGACAAGGTGGCCCAGATCGGCA	
CCCTGGGAAGCCTCGCCTCCAAGGCCGCCCTCAAGGACGT	
GGCCCCGGGTCTACGGCATCCCCACAAGAAGGCGGAGGAA	1560
TTGGCCAAGCTCATCCCGGTGCAGTTCGGGAAGCCCAAGC	
CCCTGCAGGAGGCCATCCAGGTGGTGC CGGAGCTTAGGGC	
GGAGATGGAGAAGGACCCCAAGGTGCGGGAGGTCTCTCGAG	1680
GTGGCCATGCGCCTGGAGGGCCTGAACCGCCACGCCTCCG	
TCCACGCCGCCGGGGTGGTGATCGCCGCCGAGCCCCCTCAC	
GGACCTCGTCCCCCTCATGCGCGACCAGGAAGGGCGGCCC	1800
GTCACCCAGTACGACATGGGGGCGGTGGAGGCCTTGGGGC	
TTTTGAAGATGGACTTTTTTGGGCCTCCGCACCCTCACCTT	

FIG. 16A

REPLACEMENT SHEET

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CCTGGACGAGGTCAAGCGCATCGTCAAGGCGTCCCAGGGG	1920
GTGGAGCTGGACTACGATGCCCTCCCCCTGGACGACCCCA	
AGACCTTCGCCCTCCTCTCCCGGGGGGAGACCAAGGGGGT	
CTTCCAGCTGGAGTCGGGGGGGATGACCGCCACGCTCCGC	2040
GGCCTCAAGCCGCGGCGCTTTGAGGACCTGATCGCCATCC	
TCTCCCTCTACCGCCCCGGGCCCATGGAGCACATCCCCAC	
CTACATCCGCCGCCACCACGGGCTGGAGCCCGTGAGCTAC	2160
AGCGAGTTTCCCCACGCCGAGAAGTACCTAAAGCCCATCC	
TGGACGAGACCTACGGCATCCCCGTCTACCAGGAGCAGAT	
CATGCAGATCGCCTCGGCCGTGGCGGGGTACTCCCTGGGC	2280
GAGGCGGACCTCCTGCGGCGGTCCATGGGCAAGAAGAAGG	
TGGAGGAGATGAAGTCCCACCGGGAGCGCTTCGTCCAGGG	
GGCCAAGGAAAGGGGCGTGCCCGAGGAGGAGGCCAACC GC	2400
CTCTTTGACATGCTGGAGGCCCTTCGCCAACTACGGCTTCA	
ACAAATCCCACGCTGCCGCCTACAGCCTCCTCTCCTACCA	
GACCGCCTACGTGAAGGCCCACTACCCCGTGGAGTTCATG	2520
GCCGCCCTCCTCTCCGTGGAGCGGCACGACTCCGACAAGG	
TGGCCGAGTACATCCGCGACGCCCGGGCCATGGGCATAGA	
GGTCTTCCCCCGGACGTCAACCGCTCCGGGTTTGACTTC	2640
CTGGTCCAGGGCCCGGCAGATCCTTTTCGGCCTCTCCGCGG	
TGAAGAACGTGGGCGAGGCGGCGGCGGAGGCCATTCTCCG	
GGAGCGGGAGCGGGGCGGCCCTACCGGAGCCTCGGCGAC	2760
TTCTCAAGCGGCTGGACGAGAAGGTGCTCAACAAGCGGA	
CCCTGGAGTCCCTCATCAAGGCGGGCGCCCTGGACGGCTT	
CGGGGAAAGGGCGCGGCTCCTCGCCTCCCTGGAAGGGCTC	2880
CTCAAGTGGGCGGCCGAGAACC GGGAGAAGGCCCGCTCGG	
GCATGATGGGCCTCTTCAGCGAAGTGAGGAGCCGCCTTT	
GGCCGAGGCCGCCCCCTGGACGAGATCACCCGGCTCCGC	3000
TACGAGAAGGAGGCCCTGGGGATCTACGTCTCCGGCCACC	
CCATCTTGCGGTACCCCGGGCTCCGGGAGACGGCCACCTG	
CACCTTGAGGAGCTTCCCCACCTGGCCCGGGACCTGCCG	3120
CCCCGGTCTAGGGTCCTCCTTGCCGGGATGGTGGAGGAGG	
TGGTGC GCAAGCCCAAAAGAGCGGCGGGATGATGGCCCG	
CTTCGTCTCTCCGACGAGACGGGGGCGCTTGAGGCGGTG	3240
GCATTCGGCCGGGCCTACGACCAGGTCTCCCCGAGGCTCA	
AGGAGGACACCCCCGTGCTCGTCCTCGCCGAGGTGGAGCG	
GGAGGAGGGGGGCGTGCGGGTGCTGGCCCAGGCCGTTTGG	3360
ACCTACGAGGAGCTGGAGCAGGTCCCCCGGGCCCTCGAGG	
TGGAGGTGGAGGCCTCCCTCCTGGACGACCGGGGGGTGGC	
CCACCTGAAAAGCCTCCTGGACGAGCACGCGGGGACCCTC	3480
CCCCTGTACGTCCGGGTCCAGGGCGCCTTCGGCGAGGCCC	
TCCTCGCCCTGAGGGAGGTGCGGGTG GGGGAGGAGGCTGT	
AGGCGGCCGCGTGGTTCCGGGCCTACCTCCTGCCCGACCG	3600
GGAGGTCCCTTCTCCAGGGCGGCCAGGCGGGGGAGGCCAG	
GAGGCGGTGCCCTTCTAGGGGGTGGGCCGTGAGACCTAGC	
GCCATCGTTCTCGCCGGGGGCAAGGAGGCCTGGGCCCGAC	3720
CCCTTTTGG	

FIG. 16B

REPLACEMENT SHEET

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MGRELRF AHLHQHTQFSLLDGAPKLSDLLKWVEETTPEDP	
ALAMTDHGNLFGAVEFYKKATEMGIKPILGYEAYVAAESR	
FDRKRGKGLDGGYFHLTLLAKDFTGYQNLVRLASRAYLEG	120
FYEKPRIDREILREHAEGLIALSGCLGAEIPQFILQDRLD	
LAEARLNEYLSIFKDRFFIEIQNHGLPEQKKVNEVLKEFA	
RKYGLGMVATNDGHYVRKEDARAHEVLLAIQSKSTLDDPG	240
ALALPCEEFYVKTPEEMRAMFPEEEVGGRSPLTTPWRSPH	
VORGAAIGTRWSTRIPRFPLPEGRTEAQYLMELTFKGLLR	
RYPDRITEGFYREVFRLSGKLPPHGDGEALAEALAQVERE	360
AWERLMKSLPPLAGVKEWTAEAI FHRALYELSAIERMGFP	
GLLPHRPGLHQLGPEKGVSVGPGRGGAAGSLVAYAVGITN	
IDPLRFGLL FERFLNPERVSMPDIDTDFSDRERDRVIQYV	480
RERYGEDKVAQIGTLGSLASKAALKEVARVYGI PRKKAEE	
LAKLIPVQFGKPKPLQEAIQVVPPELRAEMEKDPKVREVLE	
VAMRLEGLNRHASVHAGRGGVFSEPLTDLVPLCATRKGGP	600
YTQYDMGAVEALGLLKMDFLGLRRTLFLDEVKRIVKASQG	
VELDYDALPLDDPKTFALLSRGETKGVFQLESGGMTATLR	
GLKPRRFEDLIAILSLYRPGPMEHIPTYIRRHHGLEPVS Y	720
SEFPHA EKYLKPILDETYGIPVYQEQIMQIASAVAGYSLG	
EADLLRRSMGKKKVEEMKSHRERFVQAKERGVPEEEANR	
LFDMLEAFANYGFNKSHAAAYSLLSYQTAYVKAHYPVEFM	840
AALLSVERHDS DKVAEYIRDARAMGIEVLPPDVNRSGFDF	
LVQGRQILFGLSAVKNVGEAAAEAILRERERGGPYRSLGD	
FLKRLDEKVLNKRTLESLIKAGALDGFGERARLLASLEGL	960
LKWAAENREKARSGMMGLFSEVEEPPLAEAAPLDEITRLR	
YEKEALGIYVSGHPILRYPGLRETATCTLEELPHLARDLP	
PRSRVLLAGMVEEVVRKPTKSGGMMARFVLSDETGALEAV	1080
AFGRAYDQVSPRLKEDTPVLVLAEVEREEGGVRVLAQAVW	
TYQELEQVPRALEVEVEASLPDDRGV AHLKSLLDEHAGTL	
PLYVRVQGA FG EALLALREVRVGEEALGALEAAGFPAYLL	1200
PNREVSPRLTGSGGPRGRALSTGLALKTYPIALPGGNEAL	
ARPLL	

FIG. 16C

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	Start1	Start2	3'-Exo I
T.th.	VERVVR	TLDDGR	FLLEEGVGLW
D.rad.			EWRYPPFLEGEAVVLDLETTGLAG-----LDEVIEVGLLRLEGG---RRLPF
Bac.sub.	HGIKMIY	MEANLVDDGVPIAYNA	AHRLLEEETVVVFDVETTTGLSAV-----YDTIIELAAVKVKGGE--IIDKF
H.inf.			MINPNRQIVLDTETTTGMNQGAHYEGHCHIEIGAVEVINRR-YTGNNX
E.c.			MSTAITRQIVLDTETTTGMNQIGAHSEGHKIEIGAVEVVNRR-LTGNNF
H.pyl.	NLEYLKACGLNFIETSEN	ITLKNLKTPLKDEV	FSFIDLETTGSCPI-----KHEILEIGAVQVKGGE--IINRF
			3'-Exo II
T.th.	QSLVR-PLPP---	AEARSWNLT---	GIPREAL
D.rad.	ETLVR-PTRP	DGSM	LIPWQAQRVHG
Bac.sub.	EAFAN-PHRP---	LSATIIELT---	GITDDMLQADAPDV
H.inf.	HIYIK-PDRP---	XDPAIKVH---	GITDEMLADKPEFKEVAQDFLDYINGAELLLIHNA
E.c.	HVYLK-DRLV---	DPEAFGVH---	GIAVDFLLDKPTFAEVAVEFMDYIRGAELVIHNA
H.pyl.	ETLVK	VKSVP-----	DYIAELT---
			3'-Exo IIIC
T.th.	-----YRLEN	PVDS	SLRLARRGLPGLRRYGLDALSEVLELPRRT--CHRALEDVERTLAVVHVHYMLT-----SG
D.rad.	-----LSWA	PERELCTMQLSRR	AFPRERTHNLTVLAERLGLFAPGGRHRSYGDVQVTAQAYLRLLLELLG-----ER
Bac.sub.	E-----VEKA	KNPV	IDTLELGRFLYPEFKNHRLNLTCKKFDIELTQ--HHRAIYDTTEATAYLLLKMLKDA-----EK
H.inf.	-LNVK	TD	ICLVTDTLQMARQMPYPGKRN-NLDALCDRLGIDNSKRTLHGALLDAEILADVLMMTGGQTNLFDDEEE
E.c.	RDI	AKTNTFCKVTD	SLAVARKMFPKGRN-SLDALCARYEIDNSKRTLHGALLDAQILADEVYLA
H.pyl.	-----CPL	LNKLCTLDLSKRAIL	SMRY-SLSFLKELLGFGIEV--SHRAYADALASYKLFELCLNLP--SYIKT

FIG. 17

REPLACEMENT SHEET

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ATGGTGGAGCGGGTGGTGCGGACCCTTCTGGACGGGAGGT 40
TCCTCCTGGAGGAGGGGGTGGGGCTTTGGGAGTGGCGCTA
CCCCTTTCCCCTGGAGGGGGGAGGCGGTGGTGGTCCTGGAC 120
CTGGAGACCACGGGGCTTGCCGGCCTGGACGAGGTGATTG
AGGTGGGCCTCCTCCGCCTGGAGGGGGGGAGGCGCCTCCC 200
CTTCCAGAGCCTCGTCCGGCCCCCTCCCGCCCCGCCGAAGCC
CGTTCGTGGAACCTCACCGGCATCCCCCGGGAGGCCCTGG 280
AGGAGGCCCCCTCCCTGGAGGAGGTTCTGGAGAAGGCCTA
CCCCCTCCGCGGGCGACGCCACCTTGGTGATCCACAACGCC 360
GCCTTTGACCTGGGCTTCCTCCGCCCCGGCCTTGGAGGGCC
TGGGCTACCGCCTGGAAAACCCCGTGGTGGACTCCCTGCG 440
CTTGGCCAGACGGGGCTTACCAGGCCTTAGGCGCTACGGC
CTGGACGCCCTCTCCGAGGTCCTGGAGCTTCCCCGAAGGA 520
CCTGCCACCGGGCCCTCGAGGACGTGGAGCGCACCCCTCGC
CGTGGTGCACGAGGTATACTATATGCTTACGTCCGGCCGT 600
CCCCGCACGCTTTGGGAACTCGGGAGGTAG

FIG. 18A

MVERVVRTLLEDGRFLLEEGVGLWEWRYPFPLEGEAVVLD 40
LETTGLAGLDEVIEVGLLRLEGGRRLPFQSLVRPLPPAEA
RSWNLTGIPREALLEEAPSLEEVLEKAYPLRGDATALVIHNA 120
AFDLGFLRPALEGLGYRLENPVVDSLRLARRGLPGLRRYG
LDALSEVLELPRRTCHRALEDVERTLAVVHEVYYMLTSGR 200
PRTLWELGRZ

FIG. 18B

REPLACEMENT SHEET

Alignment of dnaA genes.

P.mar.	MLEASWEK	VQSSL--KQNLK--	-----PSYE	TWIRPTEFG--FKN	GELTLIAPNSFSSAW	LKNYSQTIQETAE-	65
Syn.sp.	MVSCENLWQQ	ALAIL--ATQLTK--	-----PAFD	TWIKASVLIS--LGD	GVATIQVENGFVLNH	LQKSYGPLLMEVLT-	67
B.sut.	MENILDWLNQ	ALAQI--EKLSK--	-----PSFE	TWMKSTKAHS--LQG	DTLTIITAPNEFARDW	LESRYLHLIADTIY-	67
M.tub.	MTDDPGSGFTTVWNA	VVSELNGDPKVDDGP	SSDANLSAPLTPQQR	AWNLVQPLT--IVE	GFALLSVPSFVQNE	IERHLRAPITDALS-	87
T.th.	MSHEAVWQH	VLEHI--RRSITE--	-----VEFH	TWFERIRPLG--IRD	GVLELAVPTSFALDW	IRRHVAGLIQEGPR-	66
E.coli	MSLSLWQQ	CLARL--QDELPA--	-----TEFS	MWIRPLQAE--LSD	NTLALYAPNRFVLDW	VRDKYLNININGLLT-	64
T.mar.	MKER	ILQEI--KTRVNR--	-----KSWE	LWFSFDVKS--IEG	NKVVSFVGNLFIKEW	LEKKYYSVLKAVK-	61
H.pyl.	MDTNNNIEKE	ILALVKQNPVSL--	-----IEYE	NYFSQLKYNPNASKS	DIAFFYAPNQVLCTT	ITAKYGALLKEILSQ	72
P.mar.	EIFG---EPVTVHVK	VKANAESSDEHYSSA	P-----	---ITPPLEASPGSV	DSSGSSLRLSK---	-KTLPLLLNLRYVFNR	130
Syn.sp.	DLTG---QEITVKLI	TDGLEPHS---LIGQ	E-----	---SSLPMETTP	-----	-KNATALNGKYTFSR	115
B.sut.	ELTG---EELSIFV	IPQNQDVEDFMPKPQ	VKKAVKEDTSDFPQN	---	---	-----MLNPKYTFDT	119
M.tub.	RRLGH-QIQLGVRIA	PPATDEADTTVPSPS	ENPATTSPTTTDND	EIDDSAAARGDNQHS	WPSYFTERPHNTDSA	TAGVTSLNRRTYTFDT	176
T.th.	LLGAQ-APRFELRV	PGVVVEDIFQPPPS	PPAQAP-----	---	---	-----EDTFKT	108
E.coli	SFCGADAPQLRFEVG	TKPVTQTTPQAAVTSN	VAAPAQVAQTQPORA	APSTRSGWDNVPA	EP-----	-TYRSNVNVKHTFDN	140
T.mar.	VVLG---NDATFEIT	YEAFEPHSSYSEPLV	KKRAVLLTP-----	---	---	-----LNPDTYFEN	106
H.pyl.	NKVG-MHLAHSVDVR	IEVAPKIQINAQSN	NYKAIKTS-----	---	---	-----VKDSYTFEN	118
P.mar.	FVVGNPSRMAHAAAM	AVAESPGREFNPLFI	CGGVGLGKTHLMQAI	GHYRLEIDPGAKVSY	VSTETFTNDLIL--A	IRQDRMQAFRDRYR-	217
Syn.sp.	FVVGPTNRMHAAASL	AVAESPGREFNPLFL	CGGVGLGKTHLMQAI	AHYRLEMPNPAKVY	VSTERFTNDLIT--A	IRQDNMEDFRSYR-	202
B.sut.	FVIGSGNRFHAAASL	AVAEAPAKAYNPLFI	YGGVGLGKTHLMHAI	GHYVIDHNPSAKVY	LSSEKFTNEFIN--S	IRDNKAVDFRNRYR-	206
M.tub.	FVIGASNRFHAAAL	AIAEAPARAYNPLFI	WGESGLGKTHLLHAA	GNYAQRLFPGRMVKY	VSTEEFTNDFIN--S	LRDDRKVAFKRSYR-	263
T.th.	SWWGP'TTPWPHGGAV	AVAESPGRAYNPLFI	YGGRGLGKTYLMHAV	GPLRAKRFPHMRLEY	VSTETFTNELINRPS	AR-DRMTEFRERYR-	196
E.coli	FVEGKSNQLARAAAR	QVADNPGGAYNPLFL	YGGTGLGKTHLLHAV	GNGIMARKPNPAKVY	MHSERFVQDMVK--A	LQNNAIEEFKRYR-	227
T.mar.	FVVGPNGSFAYHAAL	EVAKHPGR--YNPLFI	YGGVGLGKTHLLQSI	GNYVVQNEPDLRVMY	ITSEKFLNDLVD--S	MKEGKLNFEFREKYRK	193
H.pyl.	FVVGSCNNTVYIEIAK	KVAQSDTPPPYNPVL	YGGTGLGKTHILNAI	GNHALEK--HKKVVL	VTSEDFLTDFLK--H	LDNKTMDSFKAKYR-	203

FIG. 19A

P.mar.	AADLILVDDIQFIEG	KEYTQEEFFHTFNAL	HDAGSQIVLASDRPP	SQIPRLQERLMSRFS	MGLIADVQAPDLETR	MAILQKKAHERVGL	307
Syn.sp.	SADFLILDDIQFIKG	KEYTQEEFFHTFNAL	HEAGKQVVASDRAP	QRIPGLQDRLISRFS	MGLIADIQVPDLETR	MAILQKKAEDRIRL	292
B.sut.	NVDVLLIDDIQFLAG	KEQTQEEFFHTFNAL	HEESKQIVISSDRPP	KEIPTLEDRLRSRFE	WGLITDITPPDLETR	IAILRKKAKAEGLDI	296
M.tub.	DVDVLLVDDIQFIEG	KEGIQEEFFHTFNAL	HNANKQIVISSDRPP	KQLATLEDRLRTRFE	WGLITDVQPPELETR	IAILRKKQAQMERLAV	353
T.th.	SVDALLVDDVQFIAG	KERTQEEFFHTFNAL	YEAHKQIILSSDRPP	KDILTLEARLRSRFE	WGLITDNPAPDLETR	IAILKMNAS-SGPED	285
E.coli	SVDALLIDDIQFFAN	KERSQEEFFHTFNAL	LEGNQQIILTSDRYP	KEINGVEDRLKSRFG	WGLITVAIEPPELETR	VAILMKKADENDIRL	317
T.mar.	KVDILLIDDVQFLIG	KTGVQTELFHTFNEL	HDSGKQIVICSDDREP	QKLSEFQDRLVSRFQ	MGLVAKLEPPDEETR	KSIARKMLEIEHGEL	283
H.pyl.	HCDFLLDDAQFLQG	KPKLEEEFFHTFNEL	HANSKQIVILISDRSP	KNIAGLEDRLKSRFE	WGITAKVMPDLETK	LSIVKQKCQLNQITL	293
P.mar.	PRDLIQFIAGRFTSN	IRELEGALTRAIAFA	SITGLPMTVDSIAPM	LD-----PNGQGVVET	PKQVLDKVAEVFKVT	PDEMRSASRRR-PVS	392
Syn.sp.	PKEVIEYIAHYTSN	IRELEGALIRAIAYT	SLSNVAMTVENIAPV	LN-----PPVEKVAAA	PETIITIVAQHYQLK	VEELLSNSRRR-EVS	377
B.sut.	PNEVMLYIANQIDSN	IREGALIRVWAYS	SLINKDINADLAAEA	LKDII-PSSKPKVIT	IKEIQRVVGQQFNK	LEDFKAKKRTK-SVA	384
M.tub.	PDDVLELIAASSIERN	IREGALIRVTAFAT	SLNKTPIDKALAEIV	LRDLI-ADANTMQIS	AATIMAAATAEYFDTT	VEELRGPGKTR-ALA	441
T.th.	PEDALEYIARQVTSN	IREWEGALMRASPFA	SLNGVELTRAVAAKA	LRHLR-P--RELEAD	PLEIIRKKAAGPVRPE	TPGGAHGERRKKEVV	372
E.coli	PGEVAFYIAKRLRSN	VRELEGALNRVIANA	NFTGRAITIDFVREA	LRDLL-A-LQEKLV	IDNIQKTVAEYKIK	VADLLSKRRSR-SVA	404
T.mar.	PEEVNFAENVDDN	LRRLRGAIILKLVYK	ETTGKEVDLKEAILL	LKDFIKPNRVKAMDP	IDELIETIVAKVTGVP	REEILSNSRNV-KAL	372
H.pyl.	PEEVMEYIAQHISDN	IRQMEGAIIKISVNA	NLMNASIDLNLAKTV	LEDL--QKDHAEGSS	LENILLAVAQSLNLK	SSEIKVSSRQK-NVA	380
P.mar.	QARQVGMVLMRQGTN	LSLPRIGDTFGGKDH	TTVMYAIEQVEKKLS	S-----DPQIA	SQVQKIRDLLQIDSR	RKR----	461
Syn.sp.	LARQVGMVLMRQHTD	LSLPRIGEAFGGKDH	TTVMYSCDKITQLQQ	K-----DWETS	QTLTSLSHRINIAGQ	APES----	447
B.sut.	FPRQIAMVLSREMTD	SSLPKIGEFGGRDH	TTVIHAHEKISKLLA	D-----DEQLQ	QHVKEIKEQLK----	-----	446
M.tub.	QSRQIAMVLCRELT	LSLPKIGQAFG-RDH	TTVMYAQRKILSEMA	E-----RREVF	DHVKELTTRIRORSK	R-----	507
T.th.	LPRQIAMVLRVRELT	ASLPEIGQLFGGRDH	TTVRYAIQKVQELAG	KP-----DREVQ	GLLRTLREACTDPVD	NLWITCG	446
E.coli	RPRQMAMALAKELTN	HSLPEIGDAFGGRDH	TTVLHACRKIEQLRE	E-----SHDIK	EDFSNLIRTLSS----	-----	467
T.mar.	TARRIGMYVAKNYLK	SSLRTIAEKFN-RSH	PVVVDSVKVKVDSLL	KG-----NKQLK	ALIDEVIGEISRRAL	SG-----	440
H.pyl.	LARKLVVYFARLYTP	NPTLSLAQFLDLKDH	SSISKMYSGVKKMLE	EESKSPFVLSLREEIK	NRLNELNDKKTAFNS	SE-----	457

FIG. 19B

REPLACEMENT SHEET

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GTGTCGCACGAGGCCGTCTGGCAACACGTTCTGGAGCACA
TCCGCCGCAGCATCACCGAGGTGGAGTTCACACCTGGTT
TGAAAGGATCCGCCCCCTTGGGGATCCGGGACGGGGTGCTG 120
GAGCTCGCCGTGCCACCTCCTTTGCCCTGGACTGGATCC
GGCGCCACTACGCCGGCCTCATCCAGGAGGGCCCTCGGCT
CCTCGGGGGCCAGGCGCCCCGGTTTGAGCTCCGGGTGGTG 240
CCCGGGGTCTAGTCCAGGAGGACATCTTCCAGCCCCCGC
CGAGCCCCCGGCCCAAGCTCAACCCGAAGATACCTTTAA
AACTTCGTGGTGGGGCCCAACAACCTCCATGGCCCCACGGC 360
GGCGCCGTGGCCGTGGCCGAGTCCCCCGGCCGGGCCTACA
ACCCCTCTTCATCTACGGGGGCCGTGGCCTGGGAAAGAC
CTACCTGATGCACGCCGTGGGCCCACTCCGTGCGAAGCGC 480
TTCCCCCACATGAGATTAGAGTACGTTTCCACGGAAACTT
TCACCAACGAGCTCATCAACCGGCCATCCGCGAGGGACCG
GATGACGGAGTTCCGGGAGCGGTACCGCTCCGTGGACCTC 600
CTGCTGGTGGACGACGTCCAGTTCATCGCCGGAAAGGAGC
GCACCCAGGAGGAGTTTTTCCACACCTTCAACGCCCTTTA
CGAGGCCCAACAAGCAGATCATCCTCTCCTCCGACCGGCCG 720
CCCAAGGACATCCTCACCTTGGAGGCGCGCCTGCGGAGCC
GCTTTGAGTGGGGCCTGATCACCGACAATCCAGCCCCCGA
CCTGGAAACCCGGATCGCCATCCTGAAGATGAACGCCAGC 840
AGCGGGCCTGAGGATCCCGAGGACGCCCTGGAGTACATCG
CCCGGCAGGTCACCTCCAACATCCGGGAGTGGGAAGGGGC
CCTCATGCGGGCATCGCCTTTCGCCTCCCTCAACGGCGTT 960
GAGCTGACCCGCGCCGTGGCGGCCAAGGCTCTCCGACATC
TTCGCCCCAGGGAGCTGGAGGCGGACCCCTTGGAGATCAT
CCGCAAAGCGGCGGGACCAGTTCGGCCTGAAACCCCGGGA 1080
GGAGCTCACGGGGAGCGCCGCAAGAAGGAGGTGGTCCTCC
CCCGGCAGCTCGCCATGTACCTGGTGCGGGAGCTCACCCC
GGCCTCCCTGCCCGAGATCGACCAGCTCAACGACGACCGG 1200
GACCACACCACGGTCCTCTACGCCATCCAGAAGGTCCAGG
AGCTCGCGGAAAGCGACCGGGAGGTGCAGGGCCTCCTCCG
CACCTCCGGGAGGCGTGCACATGA

FIG. 20A

REPLACEMENT
SHEET

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VSHEAVWQHVLEHIRRSITEVEFHTWFERIRPLGIRDGVL
ELAVPTSFALDWIRRHAGLIQEGPRLPGAQAPRFELRVV
PGVVVQEDIFQPPSPPAQAQPEDTFKTSWWGPTTPWPHG 120
GAVAVAESPGRAYNPLFIYGGRGLGKTYLMHAVGPLRAKR
FPHMRLEYVSTETFTNELINRPSARDRMTEFRERYRSVDL
LLVDDVQFIAGKERTQEEFFHTFNALYEAHKQIILSSDRP 240
PKDILTLEARLRSRFEWGLITDNPAPDLETRIAILKMNAS
SGPEDPEDALEYIARQVTSNIREWEGALMRASPFASLNGV
ELTRAVAAKALRHLRPRELEADPLEIIRKAAGPVRPETPG 360
GAHGERRKKEVVLPRQLAMYLVLRELTPASLPEIDQLNDDR
DHTTVLYAIAQKVQELAESDREVQGLLRTLREACT

FIG. 20B

REPLACEMENT SHEET

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ATGAACATAACGGTTCCCAAAAAA	ACTCCTCTCGGACCAGC	40
TTTCCCTCCTGGAGCGCATCGTCCCCTCTAGAAGCGCCAA		
CCCCCTCTACACCTACCTGGGGCTTTACGCCGAGGAAGGG		120
GCCTTGATCCTCTTCGGGACCAACGGGGAGGTGGACCTCG		
AGGTCCGCCTCCCCGCCGAGGCCCAAAGCCTTCCCCGGGT		200
GCTCGTCCCCGCCAGCCCTTCTTCCAGCTGGTGCGGAGC		
CTTCCTGGGGACCTCGTGGCCCTCGGCCTCGCCTCGGAGC		280
CGGGCCAGGGGGGGGCAGCTGGAGCTCTCCTCCGGGGCGTTT		
CCGCACCCGGCTCAGCCTGGCCCCCTGCCGAGGGCTACCCC		360
GAGCTTCTGGTGCCCCGAGGGGGAGGACAAGGGGGCCTTCC		
CCCTCCGGACGCGGATGCCCTCCGGGGAGCTCGTCAAGGC		440
CTTGACCCACGTGCGCTACGCCGCGAGCAACGAGGAGTAC		
CGGGCCATCTTCCGCGGGGTGCAGCTGGAGTTCTCCCCC		520
AGGGCTTCCGGGCGGTGGCCTCCGACGGGTACCGCCTCGC		
CCTCTACGACCTGCCCCCTGCCCCAAGGGTTCCAGGCCAAG		600
GCCGTGGTCCCCGCCCGGAGCGTGGACGAGATGGTGCGGG		
TCCTGAAGGGGGCGGACGGGGCCGAGGCCGTCCTCGCCCT		680
GGGCGAGGGGGTGTTGGCCCTGGCCCTCGAGGGCGGAAGC		
GGGGTCCGGATGGCCCTCCGCCTCATGGAAGGGGAGTTCC		760
CCGACTACCAGAGGGTTCATCCCCCAGGAGTTCGCCCTCAA		
GGTCCAGGTGGAGGGGGAGGCCCTCAGGGAGGCGGTGCGC		840
CGGGTGAGCGTCCTCTCCGACCGGCAGAACCACCGGGTGG		
ACCTCCTTTTGGAGGAAGGCCGGATCCTCCTCTCCGCCGA		920
GGGGGACTACGGCAAGGGGCAGGAGGAGGTGCCCCGCCAG		
GTGGAGGGGCGGACATGGCCGTGGCCTACAACGCCCGCT		1000
ACCTCCTCGAGGCCCTCGCCCCCGTGGGGGACCGGGCCCA		
CCTGGGCATCTCCGGGCCCCACGAGCCCGAGCCTCATCTGG		1080
GGGGACGGGGAGGGGTACCGGGCGGTGGTGGTGCCCTCA		
GGGTCTAG		1128

FIG. 21A

REPLACEMENT SHEET

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MNITVPKKLLSDQLSLLERIVPSRSANPLYTYLGLYAEEG 40
ALILFGTNGEVDLEVRLPAEAQSLPRVLVPAQPFFQLVRS
LPGDLVALGLASEPGQGQLELSSGRFRTRLAPAEGLYP 120
ELLVPEGEDKGAFPLRTRMPSEGELVKALTHVRYAASNEEY
RAIFRGVQLEFSPQGFRAVASDGYRLALYDLPLPQGFQAK 200
AVVPARSVDEMVRVLKGADGAEAVLALGEGVLALALEGGS
GVRMALRLMEGEFPDYQRVIPQEFALKVQVEGEALREAVR 280
RVSVLSDRQNHRVDLLLEEGRILLSAEGDYGKGQEEVPAQ
VEGPDMAVAYNARYLLEALAPVGDRHLGISGPTSPSLIW 360
GDGEGYRAVVVPLRVZ

FIG. 21B

REPLACEMENT SHEET

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T.th.beta	MNITVPKLLSDQLSLLERIVPSRSANPLYTYLGLYAEAGALILFGTNGEVDLEVRLP
E.coli.bet	MKFTVEREHLKPLQQVSGPLGGRPTLPILGNLLQVADGTLSTGTDLMEMVARVALV
P.mirab.be	MKFIIEREQLKPLQQVSGPLGGRPTLPILGNLLKVTTENTLSLTGTDLMEMMARVSL
H.infl.bet	MQFSISRENLLKPLQQVCGVLSNRPNIPVLNNVLLQIEDYRLTITGTDLLEVELSSQTLS
P.put.beta	MHFTIQREALKPLQLVAGVVERRQTLPVLSNVLLVWQQQLSLTGTDLLEVELVGRVQLE
B.cap.beta	MKFTIQNDILTGNLKKITRVLVKNISFPILENIIQVEDGTLSTTTNLEIELISKIEII
	* . * * * *
T.th.beta	AQSLP-RVLVPAQFFFQLVRSPLPGDLVALGLASEPGQGQGLELSSGRFRRLSLAPAEY
E.coli.bet	QPHEPGATTVPARKFFDICRGLP-EGAEIAVQLE---GERMLVRSGRSRFSLSTLPAADF
P.mirab.be	QSHEIGATTVPARKFFDIWRGLP-EGAEISVELD---GDRLLVRSGRSRFSLSTLPASDF
H.infl.bet	SSSENGTFTIPAKKFLDICRTLS-DDSEITVTFE---QDRALVQSGRSRFTLATQPAEEY
P.put.beta	EPAEPGEITVPARKLMDICKSLP-NDALIDIKVD---EQKLLVKAGRSRFTLSTLPANDF
B.cap.beta	TKYIPGKTTISGRKILNICRTLS-EKSIKMQLK---NKKMYISSENSNYILSTLSADTF
 * * *
T.th.beta	PELLVPEGEDKGAFPLRTRMPSGELVKALTHVRYAASNEEYRAIFRGVQLEFSPQGFR
E.coli.bet	PNLDD--WQSEVEFTLPQAT---MKRLIEATQFSMAHQDVRYLNGMLFETEGEELRTV
P.mirab.be	PNLDD--WQSEVEFTLPQAT---LKRLIESTQFSMAHQDVRYLNGMLFETENTELRTV
H.infl.bet	PNLTD--WQSEVDFELPQNT---LRLIETQFSMANQDARYFLNGMKFETEGNLLRTV
P.put.beta	PTVEE--GPGSLTCNLEQSK---LRLIERTSFAMAQQDVRYLNGMLLEVSRLTLRAV
B.cap.beta	PNHQN--FDYISKFDISSNI---LKEMIEKTEFSMGKQDVRYLNGMLLEKKDKFLRSV
	* * * *
T.th.beta	ASDGYRLALYDLPLPQGFQA--KAVVPARSVDENVRLKGADGAELALGEGVLALALE
E.coli.bet	ATDGHRLAVCSMPIGQSLPS-HSVIVPRKGVIELMRMLDG-GDNPLRVQIGSNNIRAHVG
P.mirab.be	ATDGHRLAVCAMDIGQSLPG-HSVIVPRKGVIELMRLLDGSGESLLQLQIGSNNLRAHVG
H.infl.bet	ATDGHRLAVCTISLEQELQN-HSVILPRKGVLELVRLLT-NDEPARLQIGTNNLVRHLK
P.put.beta	STDGHRALALCSMSAPIEQEDRHQVIVPRKGILELARLLTD-PEGMVSIVLGQHHRATTG
B.cap.beta	ATDGYRLAISYTLKKDINF-FSIIIPNKAVMELLKLLNT-QPQLLNILIGSNSIRIYTK
	..** ***. . . . * *

FIG. 22A

T.th.beta	GGSGVRMALRMEGEFPDYQRVIPQEFALKVQVEGEALREAVRRVSVLSDRQNHVRVDLLL
E.coli.bet	---DFIFTSKLVDRFPDYRRVLKPNPDKHLKQAGCDLLKQAFARAAIISNEKFRGVRLVY
P.mirab.be	---DFIFTSKLVDRFPDYRRVLKPNPTKTVIAGCDILKQAFSRAAIIISNEKFRGVRINL
H.infl.bet	---NTVFTSKLIDGRFPDYRRVLPRNATKIVEGNWEMLKQAFARASILSNERARSVRLSL
P.put.beta	---EFTFTSKLVDRFPDYRRVLKPGGDKLVVDRQALREAFSRTAILSNEKYRGIRLQL
B.cap.beta	---NLIFTTQLIEGEYPDYKSVLFKEKKNPITNSILLKKSLLRVAILAHEKFCGIEIKI
	. . . * . * . * . . . * . . . * . . . * . . . *
T.th.beta	EEGRILLSAEGDYK-GQEEVPAQVEGPDMAVAYNARYLLEALAPVG-DRAHLGISGPTS
E.coli.bet	SENQLKITANNPEQEEAEIILDVTYSGAEIMEIGFNVSYVLDVLNALKCENVRMMLTDSVS
P.mirab.be	TNGQLKITANNPEQEEAEIIVDVQYQGEEMEIGFNVSYLLDVLNLTLCCEEVKLLLTDAVS
H.infl.bet	KENQLKITASNTEHEEEAEIIVDVNNGEELVGVFNVTYILDVLNALKCNQVRMCLTDAFS
P.put.beta	AAGQLKIQANNPEQEEAEIISVDYEGSSLEIGFNVSYLLDVLGVMTEQVRLILSDSNS
B.cap.beta	ENGKFKVLSDNQEEETAEDLFEIDYFGEKIEISINVYVLLDVINNIIKSENIALFLNKSKS
 * . . . * . * . . . * *
T.th.beta	PSLIWGDG-EGYRAVVVPLRVZ (ID#108)
E.coli.bet	SVQIEDAASQSAAYVMPMRLZ (ID#109)
P.mirab.be	SVQVENVASAAAYVMPMRL- (ID#110)
H.infl.bet	SCLIENCEDSSCEYVIMPMRL- (ID#111)
P.put.beta	SALLQEAGNDDSSYVMPMRL- (ID#112)
B.cap.beta	SIQIEAENNSSNAYVVMLLKR- (ID#113)
 *

FIG. 22B

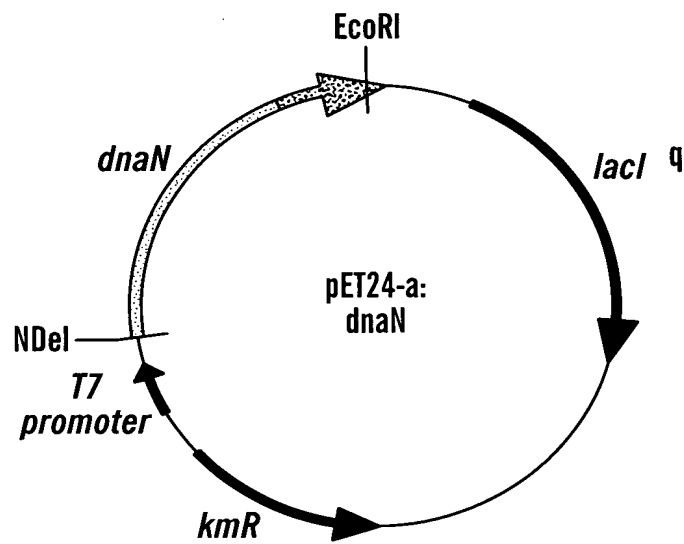


FIG. 23

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INDUCTION

MW

UNINDUCED

INDUCED



β

FIG. 24A

LYSIS

HEAT STEP

MonoQ COLUMN

FRACTION: 5 7 9 11 13 15 17 19 21 23 25



β

FIG. 24B

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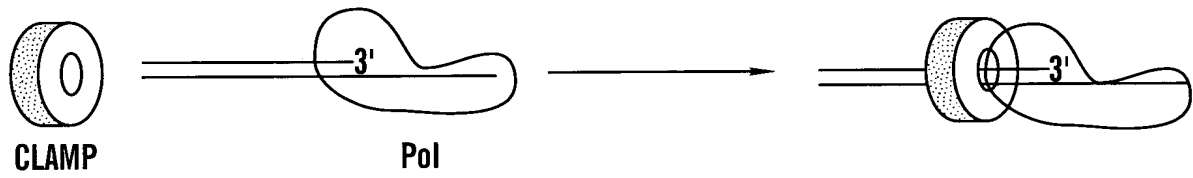


FIG. 25A

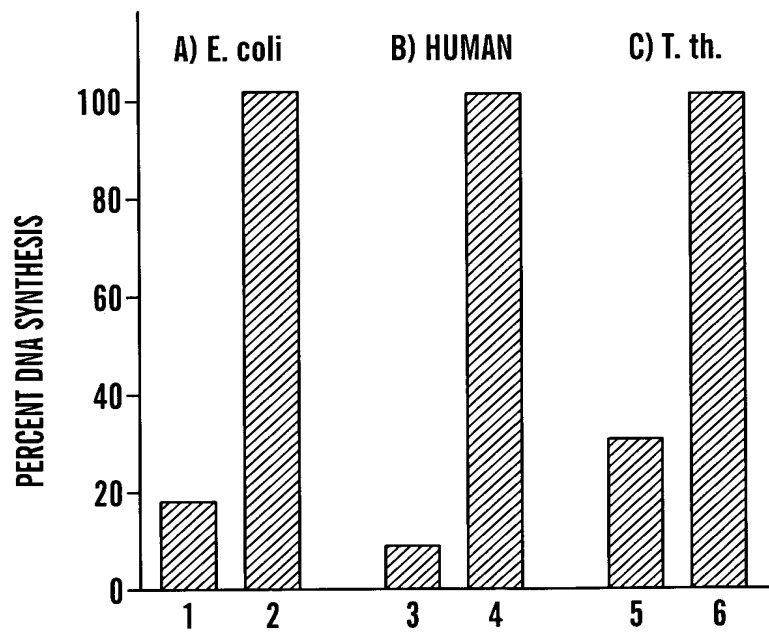


FIG. 25B

REPLACEMENT
SHEET

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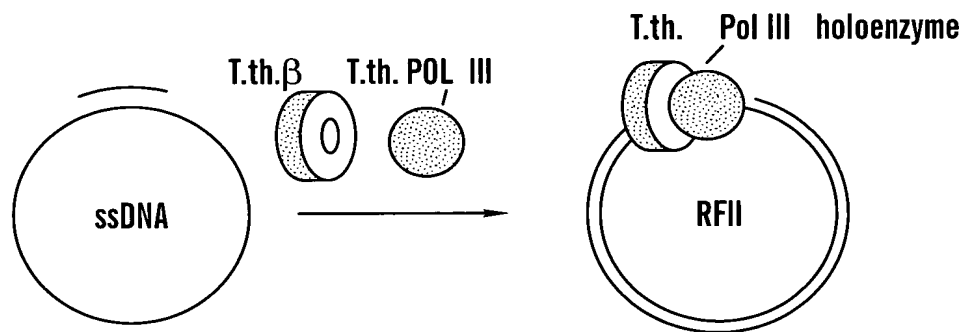


FIG. 26A

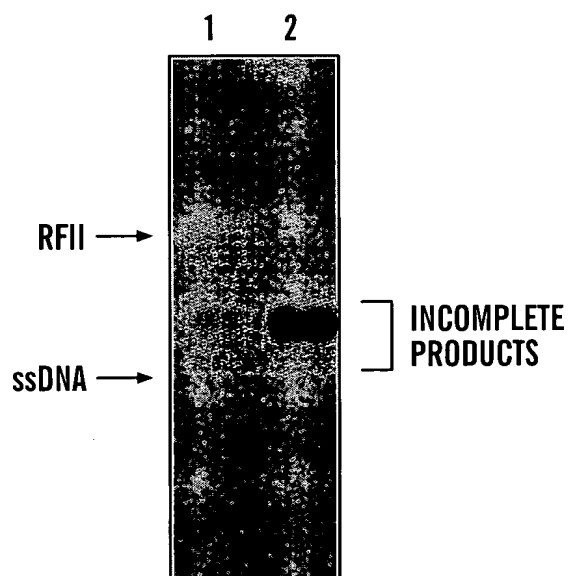


FIG. 26B

REPLACEMENT SHEET

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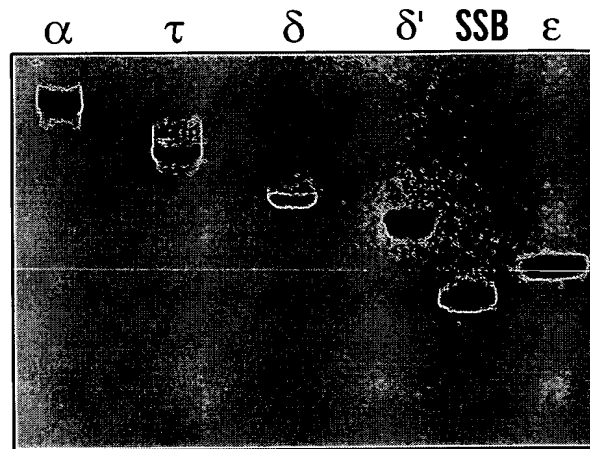


FIG. 27



FIG. 28

REPLACEMENT
SHEET

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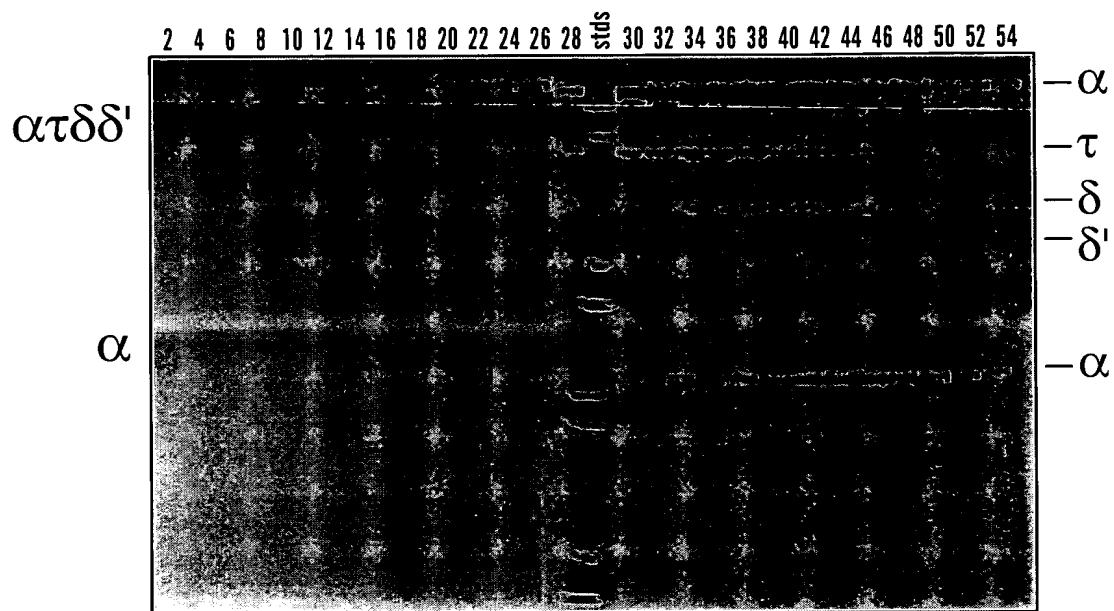


FIG. 29

REPLACEMENT
SHEET

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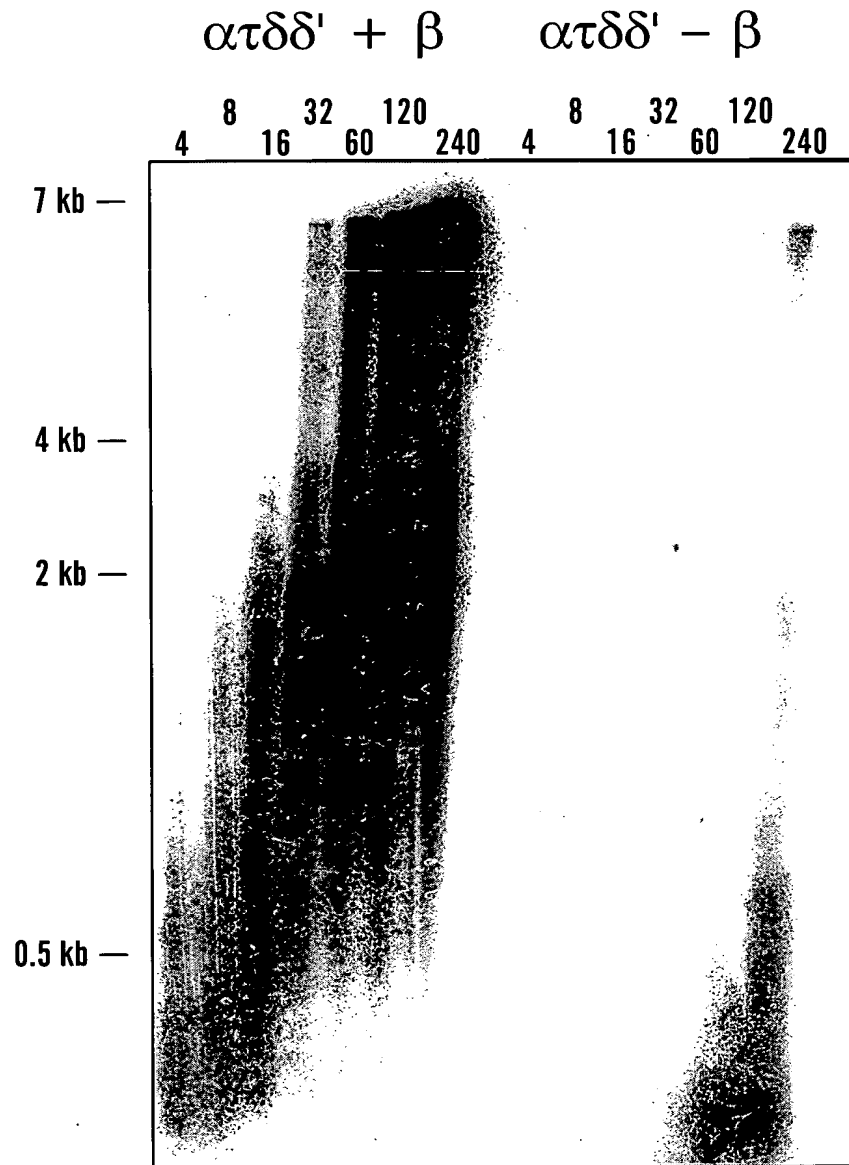


FIG. 30

REPLACEMENT
SHEET

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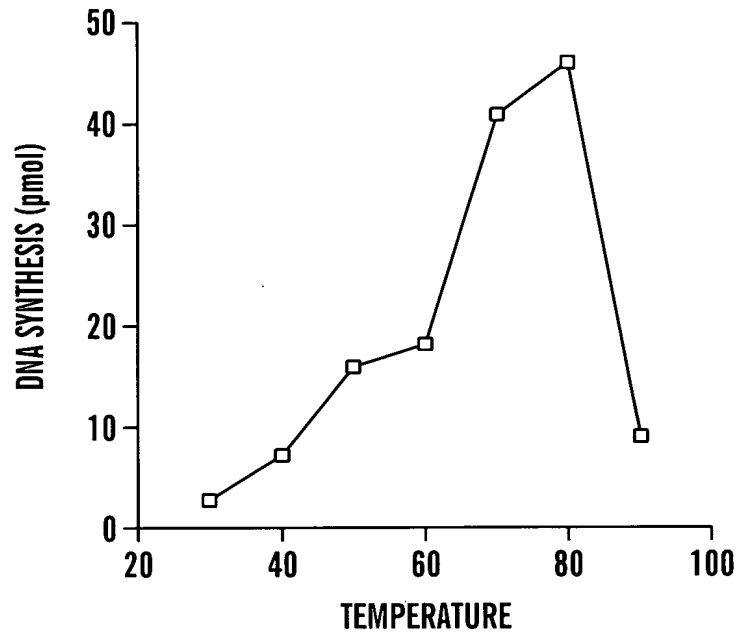


FIG. 31

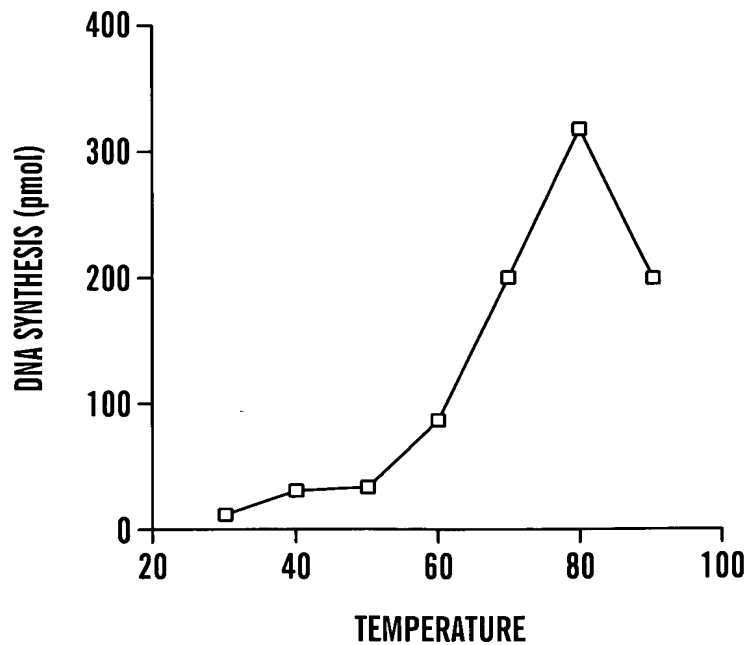


FIG. 32

REPLACEMENT SHEET

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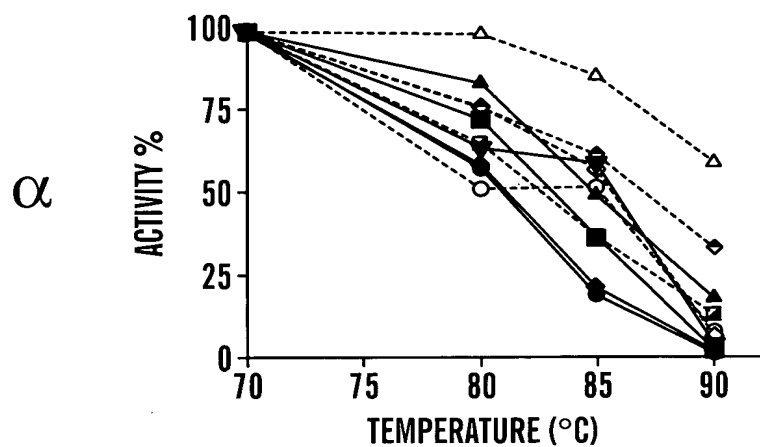


FIG. 33A

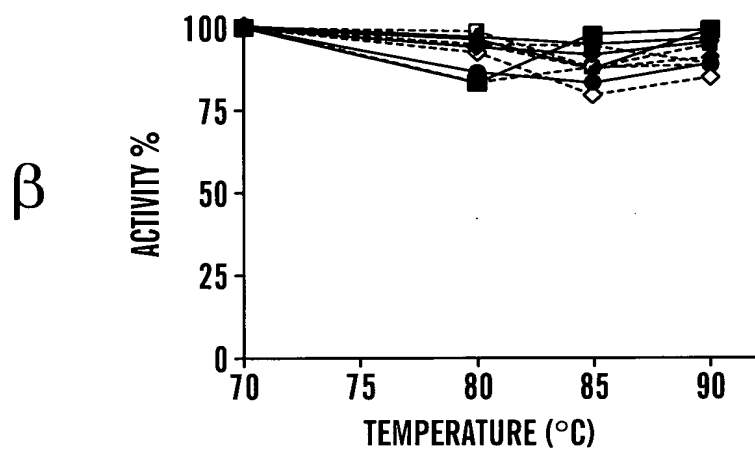


FIG. 33B

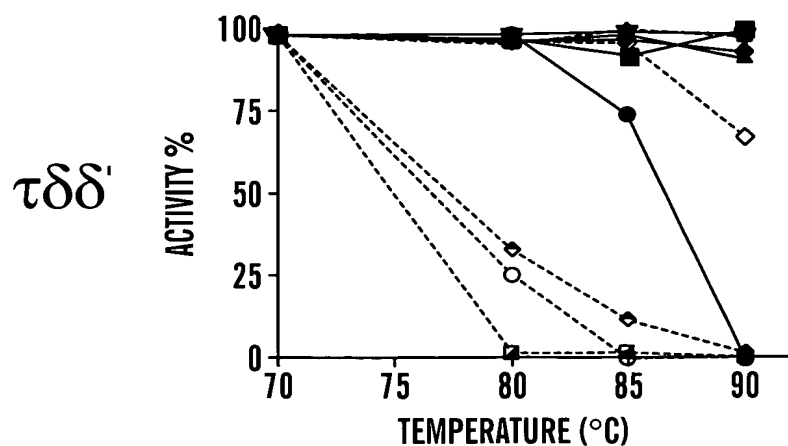


FIG. 33C

REPLACEMENT SHEET

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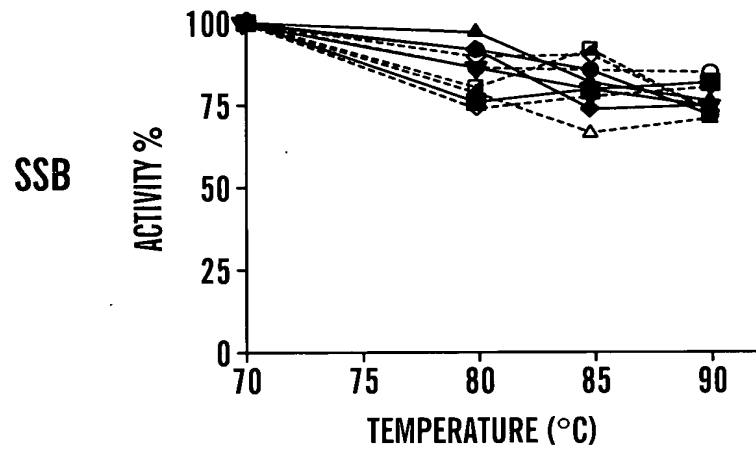


FIG. 33D

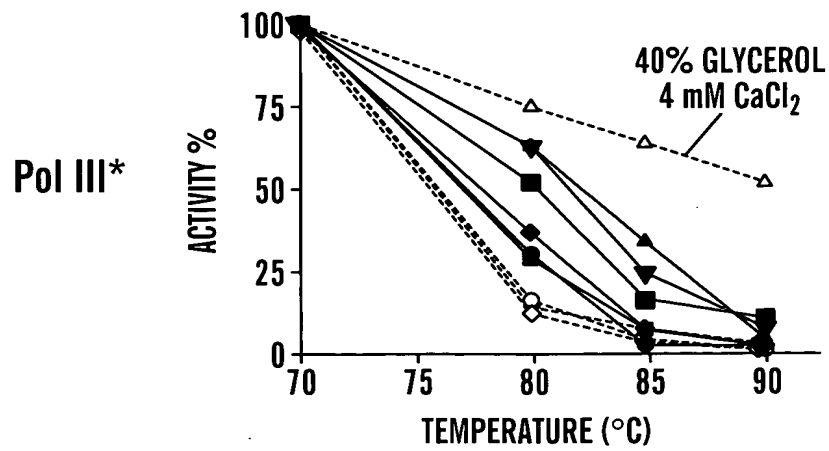


FIG. 33E

REPLACEMENT SHEET

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ATGAGTAAGGATTTTCGTCCACCTTCACCTGCACACCCAGTTCTCACTCCT	100
GGACGGGGCTATAAAGATAGACGAGCTCGTGAAAAAGGCAAAGGAGTATG	
GATACAAAGCTGTCGGAATGTCAGACCACGGAAACCTCTTCGGTTCGTAT	200
AAATTCTACAAAGCCCTGAAGGCGGAAGGAATTAAGCCCATAATCGGCAT	
GGAAGCCTACTTTACCACGGGTTTCGAGGTTTGACAGAAAGACTAAAACGA	300
GCGAGGACAACATAACCGACAAGTACAACCACCACCTCATACTTATAGCA	
AAGGACGAAAAGGTCTAAAGAAGTTAATGAAGCTCTCAACCCTCGCCTAC	400
AAAGAAGGTTTTTTACTACAAACCCAGAATTGATTACGAACCTCCTTGAAAA	
GTACGGGGAGGGCCTAATAGCCCTTACCGCATGCCTGAAAGGTGTTCCCA	500
CCTACTACGCTTCTATAAACGAAGTGAAAAAGGCGGAGGAATGGGTAAAG	
AAGTTCAAGGATATATTCGGAGATGACCTTTATTTAGAACTTCAAGCGAA	600
CAACATTCCAGAACAGGAAGTGGCAAACAGGAACTTAATAGAGATAGCCA	
AAAAGTACGATGTGAAACTCATAGCGACGCAGGACGCCACTACCTCAAT	700
CCCGAAGACAGGTACGCCACACGGTTCTTATGGCACTTCAAATGAAAAA	
GACCATTACGAACTGAGTTTCGGGAAACTTCAAGTGTTCAAACGAAGACC	800
TTCACTTTGCTCCACCCGAGTACATGTGGAAAAAGTTTGAAGGTAAGTTC	
GAAGGCTGGGAAAAGGCACTCCTGAACACTCTCGAGGTAATGGAAAAGAC	900
AGCGGACAGCTTTGAGATATTTGAAAACCTCACCTACCTCCTTCCCAAGT	
ACGACGTTCCGCCCCGACAAAACCCTTGAGGAATACCTCAGAGAACTCGCG	1000
TACAAAGGTTTAAAGACAGAGGATAGAAAGGGGACAAGCTAAGGATACTAA	
AGAGTACTGGGAGAGGCTCGAGTACGAACTGGAAGTTATAAACAAAATGG	1100
GCTTTGCGGGATACTTCTTGATAGTTCAGGACTTCATAAACTGGGCTAAG	
AAAAACGACATACCTGTTGGACCCGGAAGGGGAAGTGCTGGAGGTTCCCT	1200
CGTCGCATACGCCATCGGAATAACGGACGTTGACCCTATAAAGCACGGAT	
TCCTTTTTTGAGAGGTTCTTAAACCCCGAAAGGGTTTCCATGCCGGATATA	1300
GACGTGGATTTCTGTCAGGACAACAGGGAAAAGGTCATAGAGTACGTAAAG	
GAACAAGTACGGACACGACAACGTAGCTCAGATAATCACCTACAACGTAA	1400
TGAAGGCGAAGCAAACACTGAGAGACGTCGCAAGGGCCATGGGACTCCCC	
TACTCCACCGCGGACAAACTCGCAAAACTCATTCCCTCAGGGGGACGTTCA	1500
GGGAACGTGGCTCAGTCTGGAAGAGATGTACAAAACGCCTGTGGAGGAAC	
TCCTTCAGAAAGTACGGAGAACACAGAACGGACATAGAGGACAACGTAAAG	1600
AAGTTCAGACAGATATGCGAAGAAAGTCCGGAGATAAAACAGCTCGTTGA	
GACGGCCCTGAAGCTTGAAGGTCTCACGAGACACACCTCCCTCCACGCCG	1700
CGGGAGTGGTTATAGCACCAAAGCCCTTGAGCGAGCTCGTTCCCCTCTAC	
TACGATAAAGAGGGCGAAGTCGCAACCCAGTACGACATGGTTTCAGCTCGA	1800
AGAAGTCTGGTCTCCTGAAGATGGACTTCCTCGGACTCAAACCCCTCACAG	
AACTGAACTCATGAAAGAACTCATAAAGGAAAGACACGGAGTGGATATA	1900
AACTTCCTTGAAGTTCCCTTGACGACCCGAAAGTTTACAAACTCCTTCA	
GGAAGGAAAAACCACGGGAGTGTTCCAGCTCGAAAGCAGGGGAATGAAAG	2000
AACTCCTGAAGAACTAAAGCCCCGACAGCTTTGACGACATCGTTGCGGTC	
CTCGCACTCTACAGACCCGGACCTCTAAAGAGCGGACTCGTTGACACATA	2100
CATTAAGAGAAAGCACGGAAAAGAACCCGTTGAGTACCCCTTCCCGGAGC	
TTGAACCCGTCCTTAAGGAAACCTACGGAGTAATCGTTTATCAGGAACAG	2200
GTGATGAAGATGTCTCAGATACTTTCCGGCTTTACTCCCGGAGAGGCGGA	
TACCCTCAGAAAGGCGATAGGTAAGAAGAAAGCGGATTTAATGGCTCAGA	2300
TGAAAGACAAGTTCATACAGGGAGCGGTGGAAAGGGGATACCCTGAAGAA	
AAGATAAGGAAGCTCTGGGAAGACATAGAGAAGTTTCGCTTCCCTACTCCTT	2400
CAACAAGTCTCACTCGGTAGCTTACGGGTACATCTCCTACTGGACCGCCT	

FIG. 34A

REPLACEMENT SHEET

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ACGTTAAAGCCCACCTATCCCGCGGAGTTCTTCGCGGTAAAACTCACAAC	
GAAAAGAACGACAACAAGTTCCTCAACCTCATAAAAGACGCTAAACTCTT	2500
CGGATTTGAGATACTTCCCCCGACATAAACAAGAGTGATGTAGGATTTA	
CGATAGAAGGTGAAAACAGGATAAGGTTTCGGGCTTGCGAGGATAAAGGGA	2600
GTGGGAGAGGAAACTGCTAAGATAATCGTTGAAGCTAGAAAGAAGTATAA	
GCAGTTCAAAGGGCTTGCGGACTTCATAAACAAAACCAAGAACAGGAAGA	2700
TAAACAAGAAAGTCGTGGAAGCACTCGTAAAGGCAGGGGCTTTTGACTTT	
ACTAAGAAAAAGAGGAAAGAACTACTCGCTAAAGTGGCAAACCTCTGAAA	2800
AGCATTAATGGCTACACAAAACCTCCCTTTTCGGTGCACCGAAAGAAGAAG	
TGGAAGAACTCGACCCCTTAAAGCTTGAAAAGGAAGTTCTCGGTTTTTAC	2900
ATTTTCAGGGCACCCTTGACAACCTACGAAAAGCTCCTCAAGAACCGCTA	
CACACCCATTGAAGATTTAGAAGAGTGGGACAAGGAAAGCGAAGCGGTGC	3000
TTACAGGAGTTATCACGGAACCTCAAAGTAAAAAAGACGAAAAACGGAGAT	
TACATGGCGGTCTTCAACCTCGTTGACAAGACGGGACTAATAGAGTGTGT	3100
CGTCTTCCCGGGAGTTTACGAAGAGGCAAAGGAACTGATAGAAGAGGACA	
GAGTAGTGGTAGTCAAAGGTTTTCTGGACGAGGACCTTGAAACGGAAAAT	3200
GTCAAGTTCGTGGTGAAAGAGGTTTTCTCCCCTGAGGAGTTCGCAAAGGA	
GATGAGGAATAACCCTTTATATATTCTTAAAAAGAGAGCAAGCCCTAAACG	3300
GCGTTGCCGAAAAACTAAAGGGAATTATTGAAAACAACAGGACGGAGGAC	
GGATACAACCTTGGTTCTCACGGTTGATCTGGGAGACTACTTCGTTGATTT	3400
AGCACTCCCACAAGATATGAAACTAAAGGCTGACAGAAAGGTTGTAGAGG	
AGATAGAAAAACTGGGAGTGAAGGTCATAATTTAGTAAATAACCCTTACT	3500
TCCGAGTAGTCCCC	

FIG. 34B

REPLACEMENT SHEET

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MSKDFVHLHLHTQFSLLDGAIKIDELVKKAKEYGYKAVGMSDHGNLFGSY	100
KFYKALKAEGIKPIIGMEAYFTTGSRFDRKTKTSEDNITDKYNHHLILIA	
KDDKGLKNLMKLSTLAYKEGFYKPRIDYELLEKYGEGLIALTACCLKGVP	200
TYYASINEVKKAEEWVKKFKDIFGDDLYLELQANNIPEQEVANRNLIIEIA	
KKYDVKLIATQDAHYLNPEDRYAHTVLMALQMKKTIHELSSGNFKCSNED	300
LHFAPPEYMWKKFEGKFEGWEKALLNTLEVMEKTADSFEIFENSTYLLPK	
YDVPPDKTLEEYLRELAYKGLRQRIERGQAKDTKEYWERLEYELEVINKM	400
GFAGYFLIVQDFINWAKKNDIPVGPGRGSAGGSLVAYAIGITDVPDIKHG	
FLFERFLNPERVSMPIIDVDFCQDNREKVIEWVRNKYGHDNVAQIITYNV	500
MKAKQTLRDVARAMGLPYSTADKLAKLIPOGDVQGTWLSLEEMYKTPVEE	
LLQKYGEHRTDIEDNVKKFRQICEESPEIKQLVETALKLEGLTRHTSLHA	600
AGVVIAPKPLSELVPLYDKEGEVATQYDMVQLEELGLLKMDFLGLKTLT	
ELKLMKELIKERHGV DINFLELPLDDPKVYKLLQEGKTTGVFQLESRGMK	700
ELLKKLKPDSFDDIVAVLALYRPGPLKSGLVDTYIKRKHGKEPVEYPFPE	
LEPVLKETYGIVIVYQEQVMKMSQILSGFTPGEADTLRKAIGKKKADLMAQ	800
MKDKFIQGAVERGYPEEKIRKLWEDIEKFASYSFNKSHSVAYGYISYWTA	
YVKAHYPAEFFAVKLTTEKNDNKFLNLIKDAKLFGFEILPPDINKSDVGF	900
TIEGENRIRFGLARIKGVGEETAKIIVEARKKYKQFKGLADFIKTKNRK	
INKKVVEALVKAGAFDFTKKKRKELLAKVANSEKALMATQNSLFGAPKEE	1000
VEELDPLKLEKEVLGFYISGHPLDNYEKLLKNRYTPIEDLEEWKESAV	
LTGVITELKVKKTKNGDYMAVFNLVDKTGLIECVVFPGVYEEAKELIEED	1100
RVVVVKGFLDEDLETENVKFVVKEVFSPEEFAKEMRNTLYIFLKREQALN	
GVAEKLKGI IENNRTE DGYNLVLTVDLG DYFVDLALPQDMK LKADRKVVE	1161
EIEKLGVKVII	

FIG. 35

REPLACEMENT SHEET

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ATGAACTACGTTCCCTTCGCGAGAAAGTACAGACCGAAATTCTTCAGGGA	
AGTAATAGGACAGGAAGCTCCCGTAAGGATACTCAAAAACGCTATAAAAA	100
ACGACAGAGTGGCTCACGCCTACCTCTTTGCCGGACCGAGGGGGGTTGGG	
AAGACGACTATTGCAAGAATTCTCGCAAAAGCTTTGAACTGTAAAAATCC	200
CTCCAAAGGTGAGCCCTGCGGTGAGTGCGAAAACTGCAGGGGAGATAGACA	
GGGGTGTGTTCCCTGACTTAATTGAAATGGATGCCGCCTCAAACAGGGGT	300
ATAGACGACGTAAGGGCATTTAAAAGAAGCGGTCAATTACAAACCTATAAA	
AGGAAAGTACAAGGTTTACATAATAGACGAAGCTCACATGCTCACGAAAG	400
AAGCTTTCAACGCTCTCTTAAAAACCCTCGAAGAGCCCCCTCCCAGAACT	
GTTTTCGTCCTTTGTACCACGGAGTACGACAAAATTCTTCCCACGATACT	500
CTCAAGGTGTCAGAGGATAATCTTCTCAAAGGTAAGAAAGGAAAAAGTAA	
TAGAGTATCTAAAAAAGATATGTGAAAAGGAAGGGATTGAGTGCGAAGAG	600
GGAGCCCTTGAGGTTCTGGCTCATGCCTCTGAAGGGTGATGAGGGATGC	
AGCCTCTCTCCTGGACCAGGCGAGCGTTTACGGGGAAGGCAGGGTAACAA	700
AAGAAGTAGTGGAGAACTTCCCTCGGAATTCTCAGTCAGGAAAGCGTTAGG	
AGTTTTCTGAAATTGCTTCTGAACTCAGAAGTGGACGAAGCTATAAAGTT	800
CCTCAGAGAACTCTCAGAAAAGGGCTACAACCTGACCAAGTTTTTGGGAGA	
TGTTAGAAGAGGAAGTGAGAAACGCAATTTTAGTAAAGAGCCTGAAAAAT	900
CCCGAAAGCGTGGTTCAGAACTGGCAGGATTACGAAGACTTCAAAGACTA	
CCCTCTGGAAGCCCTCCTCTACGTTGAGAACCTGATAAACAGGGGTAAAG	1000
TTGAAGCGAGAACGAGAGAACCCTTAAGAGCCTTTGAACTCGCGGTAAATA	
AAGAGCCTTATAGTCAAAGACATAATTCCCGTATCCCAGCTCGGAAGTGT	1100
GGTAAAGGAAACCAAAAAGGAAGAAAAGAAAGTTGAAGTAAAAGAAGAGC	
CAAAAGTAAAAGAAGAAAAACCAAAGGAGCAGGAAGAGGACAGGTTCCAG	1200
AAAGTTTTTAAACGCTGTGGACGGCAAAATCCTTAAAAGAATACTTGAAGG	
GGCAAAAAGGGAAGAAAGAGACGGAAAAATCGTCCTAAAGATAGAAGCCT	1300
CTTATCTGAGAACCATGAAAAAGGAATTTGACTCACTAAAGGAGACTTTT	
CCTTTTTTTAGAGTTTGAACCCGTGGAGGATAAAAAAAACCTCAGAAGTC	1400
CAGCGGGACGAGGCTGTTTTAAAGGTAAAGGAGCTCTTCAATGCAAAAAT	
ACTCAAAGTACGAAGTAAAAGCTAAGGTCTATAAAGGTGAGAATGCCCGTG	1500
GAAGAGATAGGGCTGTTTAACGCACTAATAGACGGCTTGCCCAGGTACGC	
ACTCACGAGGACGAAGGAAAAGGGAAAGGGAGAAGTTTTCGTTTTTAGCGA	1600
CTCCTTATAAAGTCAAGGAATTGATGGAAGCTATGGAGGGTATGAAAAAA	
CACATAAAGGATTTAGAAATCCTCGGAGAGACGGATGAGGATTTAACTTT	1700
TTAAAGTATGGGTGTATCTGAGCAAAGGTTTAAGCTAAAAACAAACCTGA	
AACCCGCAGGGGACCAGCCGAAAGCCATAAAAAAACTCCTTGAAAACCTA	1800
AGGAAAGGCGTAAAAGAACAACACTTCTCGGAGTCACGGGAAGCGGAAA	
GACTTTTACTCTAGCAAACGTAATAGCGAAGTACAACAAACCAACTCTTG	1900
TGGTAGTTCACAACAAAATTCTCGCGGCACAGCTATACAGGGAGTTTAAA	
GAACTATTCCCTGAAAACGCTGTAGAGTACTTTGTCTCTTACTACGACTA	2000
TTACCAACCTGAAGCCTACATTCCCGAAAAAGATTTATACATAGAAAAGG	
ACGCGAGTATAAACGAAAGCTGGAACGTTTCAGACACTCCGCCACGATAT	2100
CCGTTCTAGAAAGGAGGGACGTTATAGTAGTTGCTTCAGTTTCTTGATA	
TACGGACTCGGGAAACCTGAGCACTACGAAAACCTGAGGATAAAACTCCA	2200
AAGGGGAATAAGACTGAACTTGAGTAAGCTCCTGAGGAACTCGTTGAGC	
TAGGATATCAGAGAAATGACTTTGCCATAAAGAGGGCTACCTTCTCGGTT	2300
AGGGGAGACGTGGTTGAGATAGTCCCTTCTCACACGGAAGATTACCTCGT	
GAGGGTAGAGTTCTGGGACGACGAAGTTGAAAGAATAGTCCTCATGGACG	2400
CTCTGAAC	

FIG. 36

REPLACEMENT
SHEET

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MNYVPFARKYRPKFFREVIGQEAPVRILKNAIKNDRVAHAYLFAGPRGVG	
KTTIARILAKALNCKNPSKGEPCGECENCREIDRGVFPDLIEMDAASNRG	100
IDDVRLKEAVNYKPIKGKYKVYIIDEAHMLTKEAFNALLKTLEPPPRRT	
VFVLCTTEYDKILPTILSRCQRIIFSKVRKEKVIEYLKKICEKEGIECEE	200
GALEVLAHASEGCMRDAASLLDQASVYGEGRVTKEVVENFLGILSQESVR	
SFLKLLLNSEVDEAIKFLRELSEKGYNLTKEWEMLEEEVRNAILVKSLKN	300
PESVVQNWQDYEDFKDYPLEALLYVENLINRGKVEARTREPLRAFELAVI	
KSLIVKDIIPVSQLGSVVKETKKEEKKVEVKEEPKVKEEKPKEQEEDRFQ	400
KVLNAVDGKILKRILEGAKREERDGKIVLKIEASYLRTMKKEFDLSLKETF	
PFLEFEPVEDKKKPQKSSGTRLF	473

FIG. 37

REPLACEMENT SHEET

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ATGCGCGTTAAGGTGGACAGGGAGGAGCTTGAAGAGGTTCTTAAAAAAGC	
AAGAGAAAGCACGGAAAAAAAAGCCGCACTCCCGATACTCGCGAACTTCT	100
TACTCTCCGCAAAAGAGGAAAACCTTAATCGTAAGGGCAACGGACTTGGAA	
AACTACCTTGTAAGTCTCCGTAAAGGGGGAGGTTGAAGAGGAAGGAGAGGT	200
TTGCGTCCACTCTCAAAAACCTCTACGATATAGTCAAGAACTTAAATTCCG	
CTTACGTTTACCTTCATACGGAAGGTGAAAAACTCGTCATAACGGGAGGA	300
AAGAGTACGTACAAACTTCCGACAGCTCCCGCGGAGGACTTTCCCGAATT	
TCCAGAAATCGTAGAAGGAGGAGAAACACTTTCGGGAAACCTTCTCGTTA	400
ACGGAATAGAAAAGGTAGAGTACGCCATAGCGAAGGAAGAAGCGAACATA	
GCCCTTCAGGGAATGTATCTGAGAGGATACGAGGACAGAATTCACTTTGT	500
GTTTCGGACGGTCACAGGCTTGCACCTTATGAACCTCTACGTAAACATTGA	
AAAGAGTGAAGACGAGTCTTTTGCTTACTTCTCCACTCCCGAGTGGAAC	600
TCGCCGTTAGCTCCTGGAAGGAGAATTCCCGGACTACATGAGTGTCATCC	
CTGAGGAGTTTTTCGGCGGAAGTCTTGTTTGAGACAGAGGAAGTCTTAAAG	700
GTTTTAAAGAGGTTGAAGGCTTTAAGCGAAGGAAAAGTTTTTCCCGTGAA	
GATTACCTTAAGCGAAAACCTTGCCATCTTTGAGTTCGCGGATCCGGAGT	800
TCGGAGAAGCGAGAGAGGAAATTGAAGTGGAGTACACGGGAGAGCCCTTT	
GAGATAGGATTCAACGGAAATACCTTATGGAGGCGCTTGACGCCTACGAC	900
AGCGAAAGAGTGTGGTTCAAGTTCACAACCCCCGACACGGCCACTTTATT	
GGAGGCTGAAGATTACGAAAAGGAACCTTACAAGTGCATAATAATGCCGA	1000
TGAGGGTGTAGCCATGAAAAAAGCTTTAATCTTTTTATTGAGCTTGAGCC	
TTTTAATTCCTGCGTTTAGCGAAGCCAAACCCAAGTCTTC	1090

FIG. 38

MRVKVDREELEEVLLKKARESTEKKAALPILANFLLSAKEENLIVRATDLE	
NYLVVSVKGEVEEEGEVVCVHSQKLYDIVKNLNSAYVYLHTEGEKLVITGG	100
KSTYKLPTAPAEDFPEFPEIVEGGETLSGNLLVNGIEKVEYAIKEEANI	
ALQGMYLRGYEDRIHFVGS DGHRLALYEPLGEFSKELLIPRKS LKVLKKL	200
ITGIEDVNIEKSEDES FAYFSTPEWKLA VRLLEGEFPDYMSVIP EEFSAE	
VL FETEEVLKVLKRLKALSEGKVFPVKITLSENLAIFEFADPEFGEAREE	300
IEVEYTGEPFEIGFNGKYLMEALDAYDSERVWFKFTTPDTATLLEAEDYE	
KEPYKCIIMPMRV	363

FIG. 39

REPLACEMENT SHEET

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GTGGAAACCACAATATTCCAGTTCCAGAAAACCTTTTTCACAAAACCTCC	100
GAAGGAGAGGGTCTTCGTCTTCATGGAGAAGAGCAGTATCTCATAAGAA	
CCTTTTTGTCTAAGCTGAAGGAAAAGTACGGGGAGAATTACACGGTTCTG	200
TGGGGGGATGAGATAAGCGAGGAGGAATTCTACACTGCCCTTTCCGAGAC	
CAGTATATTCGGCGGTTCAAAGGAAAAAGCGGTGGTCATTTACAACCTTCG	300
GGGATTTTCCTGAAGAAGCTCGGAAGGAAGAAAAAGGAAAAAGAAAGGCTT	
ATAAAAGTCCTCAGAAACGTAAAGAGTAACTACGTATTTATAGTGTACGA	400
TGCGAAACTCCAGAAACAGGAACCTTTCTTCGGAACCTCTGAAATCCGTAG	
CGTCTTTCGGCGGTATAGTGGTAGCAAACAGGCTGAGCAAGGAGAGGATA	500
AAACAGCTCGTCCTTAAGAAGTTCAAAGAAAAAGGGATAAACGTAGAAAA	
CGATGCCCTTGAATACCTTCTCCAGCTCACGGGTTACAACCTTGATGGAGC	600
TCAAACCTTGAGGTTGAAAAACTGATAGATTACGCAAGTGAAAAGAAAATT	
TTAACACTCGATGAGGTAAAGAGAGTAGCCTTCTCAGTCTCAGAAAACGT	700
AAACGTATTTGAGTTCGTTGATTTACTCCTCTTAAAGATTACGAAAAGG	
CTCTTAAAGTTTTGGACTCCCTCATTTCTTCGGAATACACCCCCTCCAG	800
ATTATGAAAATCCTGTCCTCCTATGCTCTAAACCTTTACACCCTCAAGAG	
GCTTGAAGAGAAGGGAGAGGACCTGAATAAGGCGATGGAAAGCGTGGGAA	900
TAAAGAACAACCTTTCTCAAGATGAAGTTCAAATCTTACTTAAAGGCAAAC	
TCTAAAGAGGACTTGAAGAACCTAATCCTCTCCCTCCAGAGGATAGACGC	1000
TTTTTCTAAACCTTTACTTTCAGGACACAGTGCAGTTGCTGGGGATTCTT	
GACCTCAAGACTGGAGAGGGAAGTTGTGAAAAATACTTCTCATGGTGGAT	1093
AATCTTTTTTATGAAGTTTGCGGTTTGCGTTTTTCCCGGTTCT	

FIG. 40

VETTIFQFQKTFFTKPPKERVFVLHGEEQYLIRTFLSKLKEKYGENYTVL	100
WGDEISEEEFYTALSETSIFGGSKEKAVVIYNFGDFLKKLGRKKKEKERL	
IKVLRNVKSNYVFIVYDAKLQKQELSSSEPLKSVASFGGIVVANRLSKERI	200
KQLVLKKFKEKGINVENDALEYLLQLTGYNLMELKLEVEKLIDYASEKKI	
LTLDEVKRVAFSVSENVNVFEFVDLLLLLDYKALKVLDLSLISFGIHPLQ	300
IMKILSSYALKLYTLKRLEEKGEDLNKAMESVGIKNNFLKMKFKSYLKAN	
SKEDLKNLILSLQRIDAFSKLYFQDTVQLLRDFLTSLEREREVVKNTSHGG	

FIG. 41

REPLACEMENT SHEET

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ATGGAAAAAGTTTTTTTGGAAAACTCCAGAAAACCTTGACATACCCGG	
AGGACTCCTTTTTTTACGGCAAAGAAGGAAGCGGAAAGACGAAAACAGCTT	100
TTGAATTTGCAAAAGGTATTTTTATGTAAGGAAAACGTACCTGGGGATGCG	
GAAGTTGTCCCTCCTGCAAACACGTAAACGAGCTGGAGGAAGCCTTCTTT	200
AAAGGAGAAATAGAAGACTTTAAAGTTTATAAGACAAGGACGGTAAAAAG	
CACTTCGTTTACCTTATGGGCGAACATCCCGACTTTGTGGTAATAATCCC	300
GAGCGGACATTACATAAAGATAGAACAGATAAGGGAAGTTAAGAACTTTG	
CCTATGTGAAGCCCCGCACTAAGCAGGAGAAAAAGTAATTATAATAGACGAC	400
GCCACGCGATGACCTCTCAGGCGGCAAACGCTCTTTTAAAGGTATTGGA	
AGAGCCACCTGCGGACACCACCTTTATCTTGACCACGAACAGGCGTTCTG	500
CAATCCTGCCGACTATCCTCTCCAGAACTTTTCAAGTGGAGTTCAAGGGC	
TTTTTCAGTAAAAGAGGTTATGGAAATAGCGAAAGTAGACGAGGAAATAGC	600
GAAACTCTCTGGAGGCAGTCTAAAAAGGGCTATCTTACTAAAGGAAAACA	
AAGATATCCTAAACAAAGTAAAGGAATTCTTGGAACCGAGCCGTTAAAA	700
GTTTACAAGCTTGCAAGTGAATTCGAAAAGTGGGAACCTGAAAAGCAAAA	
ACTCTTCCTTGAAATTATGGAAGAATTGGTATCTCAAAAATTGACCGAAG	800
AGAAAAAAGACAATTACACCTACCTTCTTGATACGATCAGACTCTTTAAA	
GACGGACTCGCAAGGGGTGTAAACGAACCTCTGTGGCTGTTTACGTTAGC	900
CGTTCAGGCGGATTAATAAACCGTTATTGATTCCGTAACATTTAAACCTT	
AATCTAAATTATGAGAGCCTTTGAAGGAGGTCTGGTATGGAAAATTTGAA	1000
GATTAGATATATAGATACGAGGAAGATAGGAACCGTGAGCGGTGTAAAAG	
T	1051

FIG. 42

MEKVFLEKLQKTLHIPGGLLFYKGESGKTKTAFEFAKGILCKENVPWGC	
GSCPSCKHVNELEEAFKGEIEDFKVYKDKDGKKHFVYLMGEHPDFVVI	100
PSGHYIKIEQIREVKNFAYVKPALSRKVI IIDDAHAMTSQAANALLKVL	
EEPPADTTFILTTNRRSAILPTILSRTFQVEFKGFSVKEVMEIAKVDEEI	200
AKLSGGSCLKRAILLKENKDILNKVKEFLENEPLKVYKLASEFEKWEPEKQ	
KLFLEIMEELVSQKLTEEEKDNYTYLLDTIRLFKDGGLARGVNEPLWLFTL	300
AVQAD	

FIG. 43

REPLACEMENT SHEET

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ATGAACTTCCTGAAAAAGTTCCTTTTACTGAGAAAAGCTCAAAAGTCTCC	
TTACTTCGAAGAGTTCTACGAAGAAATCGATTTGAACCAGAAGGTGAAAG	100
ATGCAAGGTTTGTAGTTTTTGAAGTGCAGAACCTCGACGTAAAG	
AAGGCAAAACTCCTTTCAATAGGTGCGGTTGAGGTTAAAAACCTGGAAAT	200
AGACCTCTCTAAATCTTTTTACGAGATACTCAAAAGTGACGAGATAAAGG	
CGGCGGAGATACATGGAATAACCAGGGAAGACGTTGAAAAGTACGGAAAG	300
GAACCAAAGGAAGTAATATACGACTTTCTGAAGTACATAAAGGGAAGCGT	
TCTCGTTGGCTACTACGTGAAGTTTGACGTCTCACTCGTTGAGAAGTACT	400
CCATAAAGTACTTCCAGTATCCAATCATCAACTACAAGTTAGACCTGTTT	
AGTTTCGTGAAGAGAGAGTACCAGAGTGGCAGGAGTCTTGACGACCTTAT	500
GAAGGAACTCGGTGTAGAAATAAGGGCAAGGCACAACGCCCTTGAAGATG	
CCTACATAACCGCTCTTCTTTTCCCTAAAGTACGTTTACCCGAACAGGGAG	600
TACAGACTAAAGGATCTCCCGATTTTCCTT	

FIG. 44

MNFLKKFLLLRKAQKSPYFEEFYEEIDLNQKVKDARFVVFDCEATELDVK	
KAKLLSIGAVEVKNLEIDLKSFYEILKSDEIKAAEIHGITREDVEKYGK	100
EPKEVIYDFLKYIKGSVLVGYYVKFDVSLVEKYSIKYFQYPIINYKLDLF	
SFVKREYQSGRSLDDLMKELGVEIRARHNALEDAYITALLFLKYVYPNRE	200
YRLKDLPIFL	

FIG. 45

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ATGCTCAATAAGGTTTTTATAATAGGAAGACTTACGGGTGACCCCGTTAT	
AACTTATCTACCGAGCGGAACGCCCGTAGTAGAGTTTACTCTGGCTTACA	100
ACAGAAGGTATAAAAACCAGAACGGTGAATTTTCAGGAGGAAAGTCACTTC	
TTTGACGTAAAGGCGTACGGAAAAATGGCTGAAGACTGGGCTACACGCTT	200
CTCGAAAGGATACCTCGTACTCGTAGAGGGAAGACTCTCCCAGGAAAAGT	
GGGAGAAAGAAGGAAAGAAGTTCTCAAAGGTCAGGATAATAGCGGAAAAC	300
GTAAGATTAATAAACAGGCCGAAAGGTGCTGAACTTCAAGCAGAAGAAGA	
GGAGGAAGTTCCTCCCATTTGAGGAGGAAATTGAAAACTCGGTAAAGAGG	400
AAGAGAAGCCTTTTACCGATGAAGAGGACGAAATACCTTTTAAATTTTGA	
GGAGGTAAAGTATGGTAGTGAGAGCTCCTAAGAAGAAAGTTTGTATGTA	500
CTGTGAACAAAAGAGAGAGCCAGATT	

FIG. 46

MLNKVFIIGRLTGDPVITYLPSGTPVVEFTLAYNRRYKNQNGEFQEESHF	
FDVKAYGKMAEDWATRFSGYLVLVEGRLSQEKWEKEGKKFSKVRIIAEN	100
VRLINRPGAELQAEIEEEVPPIEEEIEKLGKEEEKPFTDEEDEI PF	

FIG. 47

REPLACEMENT SHEET

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ATGCAATTTGTGGATAAACTTCCCTGTGACGAATCCGCCGAGAGGGCGGT	
TCTTGGCAGTATGCTTGAAGACCCCGAAAACATACCTCTGGTACTTGAAT	100
ACCTTAAAGAAGAAGACTTCTGCATAGACGAGCACAAGCTACTTTTCAGG	
GTTCTTACAAACCTCTGGTCCGAGTACGGCAATAAGCTCGATTTTCGTATT	200
AATAAAGGATCACCTTGAAAAGAAAACTTACTCCAGAAAATACCTATAG	
ACTGGCTCGAAGAACTCTACGAGGAGGCGGTATCCCCTGACACGCTTGAG	300
GAAGTCTGCAAAATAGTAAAACAACGTTCCGCACAGAGGGCGATAATTCA	
ACTCGGTATAGAACTCATTCACAAAGGAAAGGAAAACAAAGACTTTCACA	400
CATTAATCGAGGAAGCCCAGAGCAGGATATTTTCCATAGCGGAAAGTGCT	
ACATCTACGCAGTTTTTACCATGTGAAAGACGTTGCGGAAGAAGTTATAGA	500
ACTCATTTTATAAATTCAAAGCTCTGACAGGCTAGTCACGGGACTCCCAA	
GCGGTTTCACGGAACCTCGATCTAAAGACGACGGGATTCCACCCTGGAGAC	600
TTAATAATACTCGCCGCAAGACCCGGTATGGGGAAAACCGCCTTTATGCT	
CTCCATAATCTACAATCTCGCAAAAGACGAGGGAAAACCTCAGCTGTAT	700
TTTCCTTGGAATGAGCAAGGAACAGCTCGTTATGAGACTCCTCTCTATG	
ATGTCGGAGGTCCCACTTTTCAAGATAAGGTCTGGAAGTATATCGAATGA	800
AGATTTAAAGAAGCTTGAAGCAAGCGCAATAGAACTCGCAAAGTACGACA	
TATACCTCGACGACACACCCGCTCTCACTACAACGGATTTAAGGATAAGG	900
GCAAGAAAGCTCAGAAAGGAAAAGGAAGTTGAGTTCGTGGCGGTGGACTA	
CTTGCAACTTCTGAGACCGCCAGTCCGAAAGAGTTCAAGACAGGAGGAAG	1000
TGGCAGAGGTTTCAAGAACTTAAAAGCCCTTGCAAAGGAACTTCACATT	
CCCGTTATGGCACTTGCGCAGCTCTCCCGTGAGGTGGAAAAGAGGAGTGA	1100
TAAAAGACCCCGAGCTTGCGGACCTCAGAGAATCCGGACAGATAGAACAGG	
ACGCAGACCTAATCCTTTTCCTCCACAGACCCGAGTACTACAAGAAAAAG	1200
CCAAATCCCGAAGAGCAGGGTATAGCGGAAGTGATAATAGCCAAGCAAAG	
GCAAGGACCCACGGACATTGTGAAGCTCGCATTATTTAAGGAGTACACTA	1300
AGTTTGCAAACCTAGAAAGCCCTTCCTGAACAACCTCCTGAAGAAGAGGAA	
CTTTCCGAAATTATTGAAACACAGGAGGATGAAGGATTCTGAAGATATTGA	1400
CTTCTGAAAATTAAGGTTTTATAATTTTATCTTGGCTATCCGGGGTAGCT	
CAATCGGCAGAGCGGGTGGCTG	1472

FIG. 48

MQFVDKLPCEDESAERAVLGSMLEDPENIPLVLEYLKEEDFCIDEHKLLFR	
VLTNLWSEYGNKLDVFLIKDHLEKKNLLQKIPIDWLEELYEEAVSPDTLE	100
EVCKIVKQRSAQRAIIQLGITSTQFYHVKDVAEEVIELIYKFKSSDRLVT	
GLPSGFTELDLKTTFHFGDLIIILARPFGMGKTAFMLSIINLAKDEGKP	200
SAVFSLEMSKEQLVMRLLSMMSEVPLFKIRSGSISNEDLKKLEASAIELA	
KYDIYLLDDTPALTTTDLRIRARKLRKEKEVEFVAVDYQLLLRPPVRKSSR	300
QEEVAEVSRLNLKALAKELHIPVMALAQLSREVEKRS DKRPQLADLRESGQ	
IEQDADLILFLHRPEYYKKKPNPEEQGIAEVIIAKQRQGPTDIVKLAFIK	400
EYTKFANLEALPEQPPEEEELSEIIETQEDEGFEDIDF	

FIG. 49

REPLACEMENT SHEET

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ATGTCCTCGGACATAGACGAACTTAGACGGGAAATAGATATAGTAGACGT	100
CATTTCCGAATACTTAAACTTAGAGAAGGTAGGTTCCAATTACAGAACGA	
ACTGTCCCTTTTCACCCTGACGATACACCCTCCTTTTACGTGTCTCCAAGT	200
AAACAAATATTCAAGTGTTTCGGTTGCGGGGTAGGGGGAGACGCGATAAA	
GTTTCGTTTCCCTTTTACGAGGACATCTCCTATTTTGAAGCCGCCCTTGAAC	300
TCGCAAAACGCTACGGAAAGAAATTAGACCTTGAAAAGATATCAAAAGAC	
GAAAAGGTATACGTGGCTCTTGACAGGGTTTGTGATTTCTACAGGGAAAG	400
CCTTCTCAAAAACAGAGAGGCAAGTGAGTACGTAAAGAGTAGGGGAATAG	
ACCCTAAAGTAGCGAGGAAGTTTGATCTTGGGTACGCACCTTCCAGTGAA	500
GCACTCGTAAAAGTCTTAAAAGAGAACGATCTTTTAGAGGCTTACCTTGA	
AATAAAAACCTCCTTTCTCCTACGAAGGGTGTTTACAGGGATCTCTTTC	600
TTCGGCGTGTTCGTGATCCCGATAAAGGATCCGAGGGGAAGAGTTATAGGT	
TTCGGTGGAAGGAGGATAGTAGAGGACAAATCTCCCAAGTACATAAACTC	700
TCCAGACAGCAGGGTATTTAAAAGGGGGAGAACTTATTCGGTCTTTACG	
AGGCAAAGGAGTATATAAAGGAAGAAGGATTTGCGATACTTGTGGAAGGG	800
TACTTTGACCTTTTGAGACTTTTTTCCGAGGGGAATAAGGAACGTTGTTGC	
ACCCCTCGGTACAGCCCTGACCCAAAATCAGGCAAACCTCCTTTCCAAGT	900
TCACAAAAAAGGTCTACATCCTTTACGACGGAGATGATGCGGGAAGAAAG	
GCTATGAAAAGTGCCATTCCCCTACTCCTCAGTGCAGGAGTGGAAGTTTA	1000
TCCCGTTTACCTCCCCGAAGGATACGATCCCGACGAGTTTATAAAGGAAT	
TCGGGAAAGAGGAATTAAGAAGACTGATAAACAGCTCAGGGGAGCTCTTT	1100
GAAACGCTCATAAAAACCGCAAGGGGAAAACCTTAGAGGAGAAAACGCGTGA	
GTTTCAGGTATTATCTGGGCTTTATTTCCGATGGAGTAAGGCGCTTTGCTC	1200
TGGCTTCGGAGTTTACACCAAGTACAAAGTTCCTATGGAAATTTTATTA	
ATGAAAATTGAAAAAAATTCTCAAGAAAAAGAAATTAACTCTCCTTTAA	1300
GGAAAAAATCTTCCTGAAAGGACTGATAGAATTAAAACCAAAAATAGACC	
TTGAAGTCCTGAACTTAAGTCCTGAGTTAAAGGAACTCGCAGTTAACGCC	1400
TTAAACGGAGAGGAGCATTACTTCCAAAAGAAGTTCTCGAGTACCAGGT	
GGATAACTTGGAGAACTTTTTAACACATCCTTAGGGATTTACAAAAAT	1500
CTGGGAAAAAGAGGAAGAAAAGAGGGTTGAAAAATGTAAATACTTAATTA	
ACTTTAATAAATTTTATAGAGTTAGGA	

FIG. 50

MSSDIDELRREIDIVDVI SEYLNLEKVGSNYRTNCPFHPDDTPSFYVSPS	100
KQIFKCFGCGVGDAIKFVSLYEDISYFEAALELAKRYGKKLDLEKISKD	
EKVYVALDRVCDIFYRESLLKNREASEYVKSRGIDPKVARKFDLGYAPSSE	200
ALVKVLKENDLLEAYLETKNLLSPTKGVYRDLFLRRVVIPIKDPGRGVIG	
FGRRIVEDKSPKYINSPDSRVFKKGENLFLGLYEKEYIKEEGFAILVEG	300
YFDLLRLFSEGIRNVVAPLGTALTQNQANLLSKFTKKVYILYDGDDAGRK	
AMKSAIPLLLSAGVEVYPVYLPEGYDPDEFIKEFGKEELRRLINSSGELF	400
ETLIKARENLEEKTRFRYYLGFISDGVRRFALASEFHTKYKVPMEILL	
MKIEKNSQEKEIKLSFKEKIFLKGLIELKPKIDLEVLNLSPELKELAVNA	498
LNGEEHLLPKEVLEYQVDNLEKLFNNILRDLQKSGKKRKKRGLKNVNT	

FIG. 51

REPLACEMENT SHEET

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ATGCAAGATACCGCTACCTGCAGTATTTGTCAGGGGACGGGATTCGTAAA	
GACCGAAGACAACAAGGTAAGGCTCTGCGAATGCAGGTTCAAGAAAAGGG	100
ATGTAAACAGGGAACTAAACATCCCAAAGAGGTACTGGAACGCCAACTTA	
GACACTTACCACCCCAAGAACGTATCCCAGAACAGGGCACTTTTGACGAT	200
AAGGGTCTTCGTCCACAACCTTCAATCCCGAGGAAGGGAAAGGGCTTACCT	
TTGTAGGATCTCCTGGAGTCGGCAAACTCACCTTGCGGTTGCAACATTA	300
AAAGCGATTTATGAGAAGAAGGGAATCAGAGGATACTTCTTCGATACGAA	
GGATCTAATATTCAGGTTAAAACACTTAATGGACGAGGGAAAGGATACAA	400
AGTTTTTTAAAACTGTCTTAACTCACCGGTTTTGGTTCTCGACGACCTC	
GGTTCTGAGAGGCTCAGTGACTGGCAGAGGGAACTCATCTCTTACATAAT	500
CACTTACAGGTATAACAACCTTAAGAGCACGATAATAACCACGAATTACT	
CACTCCAGAGGGAAGAAGAGAGTAGCGTGAGGATAAGTGCGGATCTTGCA	600
AGCAGACTCGGAGAAAACGTAGTTTCAAAAATTTACGAGATGAACGAGTT	
GCTCGTTATAAAGGGTTCCGACCTCAGGAAGTCTAAAAAGCTATCAACCC	700
CATCT	

FIG. 52

MQDTATCSICQGTGFVKTEDNKNVRLCECRFKKRDVNRELNIPKRYWNANL	
DTYHPKNVSQNRALLTIRVFNHNFNPEEGKGLTFVGSPGVGKTHLAVATL	100
KAIYEKKGIRGYFFDTKDLIFRLKHLMDGKDTKFLKTVLNSPVLVLDL	
GSERLSDWQRELISYIITYRYNNLKSTIITTNYSLQREEESSVRISADLA	200
SRLGENVVSKIYEMNELLVIKGSDLRKSKKLSTPS	

FIG. 53

REPLACEMENT SHEET

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ATGAAAAAGATTGAAAATTTGAAGTGGAAAAATGTCTCGTTTAAAAGCCT	
GGAAATAGATCCCGATGCAGGTGTGGTTCTCGTTTCCGTGGAAAAATTCT	100
CCGAAGAGATAGAAGACCTTGTGCGTTTACTGGAGAAGAAGACGCGGTTT	
CGAGTCATCGTGAACGGTGTTCAAAAAAGTAACGGGGATCTAAGGGGAAA	200
GATACTTTCCCTTCTCAACGGTAATGTGCCTTACATAAAAGATGTTGTTT	
TCGAAGGAAACAGGCTGATTCTGAAAGTGCTTGGAGATTTTCGCGCGGGAC	300
AGGATCGCCTCCAACTCAGAAGCACGAAAAACAGCTCGATGAACTGCT	
GCCTCCCGGAACAGAGATCATGCTGGAGGTTGTGGAGCCTCCGGAAGATC	400
TTTTGAAAAAGGAAGTACCACAACCAGAAAAGAGAGAAGAACCAAAGGGT	
GAAGAATTGAAGATCGAGGATGAAAACCACATCTTTGGACAGAAACCCAG	500
AAAGATCGTCTTCACCCCTCAAAAATCTTTGAGTACAACAAAAAGACAT	
CGGTGAAGGGCAAGATCTTCAAAATAGAGAAGATCGAGGGGAAAAGAACG	600
GTCCTTCTGATTTACCTGACAGACGGAGAAGATTCTCTGATCTGCAAAGT	
CTTCAACGACGTTGAAAAGGTCTGAAGGGGAAAGTATCGGTGGGAGACGTGA	700
TCGTTGCCACAGGAGACCTCCTTCTCGAAAACGGGGAGCCCACCCTTTAC	
GTGAAGGGAATCACAAAACCTCCCGAAGCGAAAAGGATGGACAAATCTCC	800
GGTTAAGAGGGTGGAGCTCCACGCCCATAACCAAGTTCAGCGATCAGGACG	
CAATAACAGATGTGAACGAATATGTGAAACGAGCCAAGGAATGGGGCTTT	900
CCCGCGATAGCCCTCACGGATCATGGGAACGTTTCAGGCCATACCTTACTT	
CTACGACGCGGCGGAAAGAAGCTGGAATAAAGCCCATTTTTCGGTATCGAAG	1000
CGTATCTGGTGAGTGACGTGGAGCCCGTCATAAGGAATCTCTCCGACGAT	
TCGACGTTTGGAGATGCCACGTTTCGTTCGTCCTCGACTTCGAGACGACGGG	1100
TCTCGACCCGCAGGTGGATGAGATCATCGAGATAGGAGCGGTGAAGATAC	
AGGGTGGCCAGATAGTGGACGAGTACCACACTCTCATAAAGCCTTCCAGG	1200
GAGATCTCAAGAAAAAGTTTCGGAGATCACCGGAATCACTCAAGAGATGCT	
GGAAAACAAGAGAAGCATCGAGGAAGTTCTGCCGGAGTTCCTCGGTTTTT	1300
TGGAAGATTCCATCATCGTAGCACACAACGCCAACTTCGACTACAGATTT	
CTGAGGCTGTGGATCAAAAAAGTGATGGGATTGGACTGGGAAAGACCCTA	1400
CATAGATACGCTCGCCCTCGCAAAGTCCCTTCTCAAACCTGAGAAGCTACT	
CTCTGGATTCCGTTGTGGAAAAGCTCGGATTGGGTCCCTTCCGGCACCAC	1500
AGGGCCCTGGATGACGCGAGGGTCAACCGCTCAGGTTTTCTCAGGTTTCGT	
TGAGATGATGAAGAAGATCGGTATCACGAAGCTTTTCAGAAATGGAGAAGT	1600
TGAAGGATACGATAGACTACACCGCGTTGAAACCCTTCCACTGCACGATC	
CTCGTTCAGAACAAAAAGGGATTGAAAAACCTATACAAACTGGTTTTCTGA	1700
TTCTTATATAAAGTACTTCTACGGTGTTCGAGGATCCTCAAAGTGAGC	
TCATCGAGAACAGAGAAGGACTGCTCGTGGGTAGCGCGTGTATCTCCGGT	1800
GAGCTCGGACGTGCCGCCCTCGAAGGAGCGAGTGATTTCAGAACTCGAAGA	
GATCGCGAAGTTCTACGACTACATAGAAGTCATGCCGCTCGACGTTATAG	1900
CCGAAGATGAAGAAGACCTAGACAGAGAAAGACTGAAAGAAGTGTACCGA	
AAACTCTACAGAATAGCGAAAAAATTGAACAAGTTCGTTCGTATGACCGG	2000
TGATGTTTCAATTCCTCGATCCCGAAGATGCCAGGGGCAGAGCTGCACTTC	
TGGCACCTCAGGGAAACAGAACTTCGAGAATCAGCCCGCACTCTACCTC	2100
AGAACGACCGAAGAAATGCTCGAGAAGGCGATAGAGATATTTCGAAGATGA	
AGAGATCGCGAGGGGAAGTCGTGATAGAGAATCCCAACAGAATAGCCGATA	2200
TGATCGAGGAAGTGCAGCCGCTCGAGAAAAAACTTCACCCGCCGATCATA	
GAGAACGCCGATGAAATAGTGAGAAACCTCACCATGAAGCGGGCGTACGA	2300
GATCTACGGTGATCCGCTTCCCGAAATCGTCCAGAAGCGTGTGAAAAGG	

FIG. 54A

REPLACEMENT SHEET

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MKKIENLKWKNVSFKSLEIDPDAGVVLVSVEKFSEEIEDLVRLLEKKTRF	100
RVIVNGVQKSNGDLRGKILSLLNGNVPYIKDVVFEGNRLILKVLGDFARD	
RIASKLRSTKKQLDELLPPGTEIMLEVVEPPEDLLKKEVPQPEKREEPKG	200
EELKIEDENHIFGQKPRKIVFTPSKIFEYNKKTSVKGKIFKIEKIEGKRT	
VLLIYLTGDGEDSLICKVFNDVEKVEGKVSVDVIVATGDLLENGEPTLY	300
VKGITKLPEAKRMDKSPVKRVELHAHTKFSQDAITDVNEYVKRAKEWGF	
PAIALTDHGNVQAIPIFYDAAKEAGIKPIFGIEAYLVSDVEPVIRNLSDD	400
STFGDATFVVLDFETTGLDPQVDEIIIEIGAVKIQGGQIVDEYHTLIKPSR	
EISRKSSEITGITQEMLNKRSEIEVLPEFLGFLEDSIIIVAHNANFDYRF	500
LRLWIKKVMGLDWERPYIDTLALAKSLLKLRSYSLDSVVEKLGLGPFRRH	
RALDDARVTAQVFLRFVEMMKKIGITKLSEMEKLKDTIDYTALKPFHCTI	600
LVQNKKGKLNLYKLVSDSYIKYFYGVPRILKSELIENTREGLLVGSACISG	
ELGRAALEGASDSELEEIAKFYDYIEVMPLDVIAEDEEDLDRERLKEVYR	700
KLYRIAKKLNKFVVMTGVDVHFLDPEDARGRAALLAPQGNRNFENQPALYL	
RTTEEMLEKAIEIFEDEEIAREVVIENPNRIADMIEEVQPLEKKLHPPII	800
ENADEIVRNLTMKRAYEIIYGDPLPEIVQKRVEKELNAIINHGYAVLYLIA	
QELVQKSMDSGYVVGSRGSSVLNLLGITEVNPLPPHYRCPECKYFE	900
VVEDDRYGAGYDLPNKNCPRCGAPLRKDGHGIPFETFMGFEGDKVPDIDL	
NFSGEYQERAHRFVEELFGKDHVYRAGTINTIAERSAVGYVRSYEEKTGK	1000
KLRKAEMERLVSMITGVKRTTGQHPGGLMIIPKDKEVYDFTPIQYPANDR	
NAGVFTTHFAYETIHDDLVKIDALGHDDPTFIKMLKDLTGIDPMTIPMDD	1100
PDTLAIFFSSVKPLGVDPELESDVGTYGIPEFGTEFVRGMLVETRPKSFA	
ELVRISGLSHGTDVWLNWARDWINLGYAKLSEVISCRDDIMNFLIHKGME	1200
PSLAFKIMENVRKGKGITEEMESEMRRLKVPEWFIESCKRIKYLFPKAHA	
VAYVSMAFRIAYFKVHYPLQFYAAYFTTIKGDQFDPVLVLRGKEAIKRRLR	1300
ELKAMPAKDAQKKNEVSVLEVALEMILRGFSFLPPDIFKSDAKKFLIEGN	
SLRIPFNKLPLGLGDSVAESIIRAREEKPFTSVEDLMKRTKVKNKHIELMK	1367
SLGVLGDLPETEQFTLF	

FIG. 55

REPLACEMENT SHEET

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GTGCTCGCCATGATATGGAACGACACCGTTTTTTTTCGCTCGTAGACACAGA	
AACCACGGGAACCGATCCCTTTGCCGGAGACCGGATAGTTGAAATAGCCG	100
CTGTTCCCTGTCTTCAAGGGGAAGATCTACAGAAACAAAGCGTTTCACTCT	
CTCGTGAATCCCAGAATAAGAATCCCTGCGCTGATTCAGAAAGTTCACGG	200
TATCAGCAACATGGACATCGTGGAAGCGCCAGACATGGACACAGTTTACG	
ATCTTTTTCAGGGATTACGTGAAGGGGAACGGTGCTCGTGTTTCACAACGCC	300
AACTTCGACCTCACTTTTCTGGATATGATGGCAAAGGAAACGGGAACTT	
TCCAATAACGAATCCCTACATCGACACACTCGATCTTTCAGAAGAGATCT	400
TTGGAAGGCCTCATTTCTCTCAAATGGCTCTCCGAAAGACTTGGAATAAAA	
ACCACGATACGGCACCGTGCTCTTCCAGATGCCCTGGTGACCGCAAGAGT	500
TTTTGTGAAGCTTGTTGAATTTCTTGGTGAAAACAGGGTCAACGAATTCA	
TACGTGGAACACGGGGG	567

FIG. 56

MLAMIWNDTVFCVVDTE TTGTDPFAGDRIVEIAAVPVFKGKIYRNKAFHS	
LVNPRIRIPALIQKVHG ISNM DIVEAPDMDTVYDLFRDYVKGTVLVFNHNA	100
NFDLTFLDMMAKETGNFPITNPYIDTLDLSEEI FGRPHSLKWL SERLGIK	
TTIRHRALPDALVTARVFVKLV EFLGENRVNEFIRGKRG	189

FIG. 57

REPLACEMENT SHEET

65/83

GTGGAAGTTCTTTACAGGAAGTACAGGCCAAAGACTTTTTCTGAGGTTGT	
CAATCAGGATCATGTGAAGAAGGCAATAATCGGTGCTATTCAGAAGAACA	100
GCGTGGCCACGGATACATATTCGCCGGTCCGAGGGGAACGGGGAAGACT	
ACTCTTGCCAGAATTCTCGCAAATCCCTGAACTGTGAGAACAGAAAGGG	200
AGTTGAACCCTGCAATTCCTGCAGAGCCTGCAGAGAGATAGACGAGGGAA	
CCTTCATGGACGTGATAGAGCTCGACGCGGCCTCCAACAGAGGAATAGAC	300
GAGATCAGAAGAATCAGAGACGCCGTTGGATACAGGCCGATGGAAGGTAA	
ATACAAAGTCTACATAATAGACGAAGTTCACATGCTCACGAAAGAAGCCT	400
TCAACGCGCTCCTCAAAACACTCGAAGAACCTCCTTCCCACGTCGTGTTT	
GTGCTGGCAACGACAAACCTTGAGAAGGTTCTTCCCACGATTATCTCGAG	500
ATGTCAGGTTTTTCGAGTTCAGAAACATTCCCGACGAGCTCATCGAAAAGA	
GGCTCCAGGAAGTTGCGGAGGCTGAAGGAATAGAGATAGACAGGGGAAGCT	600
CTGAGCTTCATCGCAAAAAGAGCCTCTGGAGGCTTGAGAGACGCGCTCAC	
CATGCTCGAGCAGGTGTGGAAGTTCTCGGAAGGAAAGATAGATCTCGAGA	700
CGGTACACAGGGCGCTCGGGTTGATACCGATACAGGTTGTTTCGCGATTAC	
GTGAACGCTATCTTTTCTGGTGTGTGAAAAGGGTCTTCACCGTTCTCGA	800
CGACGTCTATTACAGCGGGAAGGACTACGAGGTGCTCATTCAGGAAGCAG	
TCGAGGATCTGGTCGAAGACCTGGAAAGGGAGAGAGGGGTTTACCAGGTT	900
TCAGCGAACGATATAGTTCAGGTTTCGAGACAACCTTCTGAATCTTCTGAG	
AGAGATAAAGTTCGCCGAAGAAAAACGACTCGTCTGTAAAGTGGGTTTCGG	1000
CTTACATAGCGACGAGGTTCTCCACCACAAACGTTTCAGGAAAACGATGTC	
AGAGAAAAAAACGATAATTCAAATGTACAGCAGAAAGAAGAGAAGAAAGA	1100
AACGGTGAAGGCAAAAGAAGAAAAACAGGAAGACAGCGAGTTCGAGAAAC	
GCTTCAAAGAACTCATGGAAGAACTGAAAGAAAAGGGCGATCTCTCTATC	1200
TTTGTCGCTCTCAGCCTCTCAGAGGTGCAGTTTGACGGAGAAAAGGTGAT	
TATTTCTTTTGATTTCATCGAAAGCTATGCATTACGAGTTGATGAAGAAAA	1300
AACTGCCTGAGCTGGAAAACATTTTTTCTAGAAAACCTCGGGAAAAAAGTA	
GAAGTTGAACTTCGACTGATGGGAAAAGAAGAAACAATCGAGAAGGTTTC	1400
TCAGAAGATCCTGAGATTGTTTGAACAGGAGGGA	

FIG. 58

MEVLYRKYRPKTFSEVVNQDHVKKAIIGAIQKNSVAHGYIFAGPRGTGKT	
TLARILAKSLNCENRKGVEPCNSCRACREIDEGTFMDVIELDAASNRGID	100
EIRRIRDAVGYPMEGKYKVYIIDEVHMLTKEAFNALLKTLEPPSHVVF	
VLATTNLEKVPPTIISRCQVFEFRNIPDELIEKRLQEVAEAEAGIEIDREA	200
LSFIAKRASGGLRDALTMLEQVWKFSEGKIDLETVHRALGLIPIQVVRDY	
VNAIFSGDVKRFTVLDVYYSGKDYEVLIQEAVEDLVEDLERERGVYQV	300
SANDIVQVSRQLLNLLREIKFAEEKRLVCKVGSAYIATRFSTTNVQENDV	
REKNDNSNVQQKEEKKETVKAKEEKQEDSEFEKRFKELMEELKEKGDLSI	400
FVALSLSEVQFDGEKVIIISFDSSKAMHYELMKKKLPELENIFSRKLGKKV	
EVELRLMGKEETIEKVSQKILRLFEQEG	478

FIG. 59

REPLACEMENT SHEET

66/83

ATGAAAGTAACCGTCACGACTCTTGAATTGAAAGACAAAATAACCATCGC	
CTCAAAAGCGCTCGCAAAGAAATCCGTGAAACCCATTCTTGCTGGATTTC	100
TTTTTCGAAGTGAAAGATGGAAATTTCTACATCTGCGCGACCGATCTCGAG	
ACCGGAGTCAAAGCAACCGTGAATGCCGCTGAAATCTCCGGTGAGGCACG	200
TTTTGTGGTACCAGGAGATGTCATTTCAGAAGATGGTCAAGGTTCTCCCAG	
ATGAGATAACGGAACTTTCTTTAGAGGGGGATGCTCTTGTTATAAGTTCT	300
GGAAGCACCGTTTTTCAGGATCACCAACCATGCCCCGCGGACGAATTTCCAGA	
GATAACGCCTGCCGAGTCTGGAATAACCTTCGAAGTTGACACTTCGCTCC	400
TCGAGGAAATGGTTGAAAAGGTCATCTTCGCCGCTGCCAAAGACGAGTTC	
ATGCGAAATCTGAATGGAGTTTTCTGGGAACTCCACAAGAATCTTCTCAG	500
GCTGGTTGCAAGTGATGGTTTCAGACTTGCACTTGCTGAAGAGCAGATAG	
AAAACGAGGAAGAGGCGAGTTTCTTGCTCTCTTTGAAGAGCATGAAAGAA	600
GTTCAAAACGTGCTGGACAACACAACGGAGCCGACTATAACGGTGAGGTA	
CGATGGAAGAAGGGTTTTCTCTGTCGACAAATGATGTAGAAACGGTGATGA	700
GAGTGGTCGACGCTGAATTTCCCGATTACAAAAGGGTGATCCCCGAACT	
TTCAAAACGAAAGTGGTGGTTTCCAGAAAAGAACTCAGGGAATCTTTGAA	800
GAGGGTGATGGTGATTGCCAGCAAGGGAAGCGAGTCCGTGAAGTTCGAAA	
TAGAAGAAAACGTTATGAGACTTGTGAGCAAGAGCCCGGATTATGGAGAA	900
GTGGTCGATGAAGTTGAAGTTCAAAAAGAAGGGGAAGATCTCGTGATCGC	
TTTCAACCCGAAGTTCATCGAGGACGTTTTGAAGCACATTGAGACTGAAG	1000
AAATCGAAATGAACTTCGTTGATTCTACCAGTCCATGTCAGATAAATCCA	
CTCGATATTTCTGGATACCTTTACATAGTGATGCCCATCAGACTGGCA	1098

FIG. 60

MKVTVTTLELKDKITIASKALAKKSVKPILAGFLFEVKDGNFYICATDLE	
TGVKATVNAAEISGEARFVVPGDVIQKMVKVLPDEITELSLEGDALVISS	100
GSTVFRITTMPADEFPEITPAESGITFEVDTSLL EEMVEKVIFAAAKDEF	
MRNLNGVFWELHKNLLRLVASDGFRLALAEQIENEE EASFLLSLKSMKE	200
VQNVLDNNTTEPTITVRYDGRRVSLSTNDVETVMRVVDAEFPDYKRVIPET	
FKTKVVVSRKELRESLKRVMVIAASKGSESVKFEIEENVMRLVSKSPDYGE	300
VVDEVEVQKEGEDLVIAFNPKFIEDVLKHIETEEIEMNFVDSTSPCQINP	
LDISGYLYIVMPIRLA	366

FIG. 61

REPLACEMENT SHEET

67/83

ATGCCAGTCACGTTTCTCACAGGTACTGCAGAACTCAGAAGGAAGAATT	
GATAAAGAACTCCTGAAGGATGGTAACGTGGAGTACATAAGGATCCATC	100
CGGAGGATCCCGACAAGATCGATTTTCATAAGGTCTTTACTCAGGACAAAG	
ACGATCTTTTCCAACAAGACGATCATTGACATCGTCAATTTTCGATGAGTG	200
GAAAGCACAGGAGCAGAAGCGTCTCGTTGAACTTTTGAAAAACGTACCGG	
AAGACGTTTCATATCTTCATCCGTTCTCAAAAAACAGGTGGAAAGGGAGTA	300
GCGCTGGAGCTTCCGAAGCCATGGGAAACGGACAAGTGGCTTGAGTGGAT	
AGAAAAGCGCTTCAGGGAGAAATGGTTTGCTCATCGATAAAGATGCCCTTC	400
AGCTGTTTTTCTCCAAGGTTGGAACGAACGACCTGATCATAGAAAGGGAG	
ATTGAAAAACTGAAAGCTTATTCCGAGGACAGAAAGATAACGGTAGAAGA	500
CGTGGAAGAGGTCGTTTTTTACCTATCAGACTCCGGGATACGATGATTTTT	
GCTTTGCTGTTTCCGAAGGAAAAAGGAAGCTCGCTCACTCTCTTCTGTCTG	600
CAGCTGTGGAAAACCAACAGAGTCCGTGGTGATTGCCACTGTCCTTGCGAA	
TCACCTCTTGATCTCTTCAAAATCCTCGTTCTTGTGACAAAGAAAAGAT	700
ACTACACCTGGCCTGATGTGTCCAGGGTGTCCAAAGAGCTGGGAATTCCC	
GTTCCCTCGTGTGGCTCGTTTCCTCGGTTTCTCCTTTAAGACCTGGAAATT	800
CAAGGTGATGAACCACCTCCTCTACTACGATGTGAAGAAGGTTAGAAAGA	
TACTGAGGGATCTCTACGATCTGGACAGAGCCGTGAAAAGCGAAGAAGAT	900
CCAAAACCGTTCTTCCACGAGTTCATAGAAGAGGTGGCACTGGATGTATA	
TTCTCTTCAGAGAGATGAAGAA	972

FIG. 62

MPVTFLTGTAEQKEELIKLLKDG NVEYIRIHPEDPKIDFIRSLRLTK	
TIFSNKTIIDIVNFDEWKAQEQKRLVELLKNVPEDVHIFIRSQKTGGKGV	100
ALELPKPWETDKWLEWIEKRFRENGLLIDKDALQLFFSKVGTNDLI IERE	
IEKCLKAYSEDRKITVEDVEEVVFTYQTPGYDDFCFAVSEGKRKLAHSLLS	200
QLWKTTESVVIATVLANHFLDLFKILVLVTKKRYYTWPDVSRVSKELGIP	
VPRVARFLGFSFKTWKFKVMNHLLEYDVKKVRKILRDLYDLDRAVKSEED	300
PKPFFHEFIEEVALDVYSLQRDEE	

FIG. 63

REPLACEMENT SHEET

68/83

ATGAACGATTTGATCAGAAAGTACGCTAAAGATCAACTGGAAACTTTGAA	
AAGGATCATAGAAAAGTCTGAAGGAATATCCATCCTCATAAATGGAGAAG	100
ATCTCTCGTATCCGAGAGAAGTATCCCTTGAAC TTCCCGAGTACGTGGAG	
AAATTTCCCCCGAAGGCCTCGGATGTTCTGGAGATAGATCCCGAGGGGGA	200
GAACATAGGCATAGACGACATCAGAACGATAAAGGACTTCCTGAACTACA	
GCCCCGAGCTCTACACGAGAAAGTACGTGATAGTCCACGACTGTGAAAGA	300
ATGACCCAGCAGGCGGCGAACGCGTTTCTGAAGGCCCTTGAAGAACCACC	
AGAATACGCTGTGATCGTTCTGAACACTCGCCGCTGGCATTATCTACTGC	400
CGACGATAAAGAGCCGAGTGTTTCAGAGTGGTTGTGAACGTTCCAAAGGAG	
TTTCAGAGATCTCGTGAAAGAGAAAAATAGGAGATCTCTGGGAGGAACTTCC	500
ACTTCTTGAGAGAGACTTCAAACCGGCTCTCGAAGCCTACAAACTTGGTG	
CGGAAAAACTTTCTGGATTGATGGAAAGTCTCAAAGTTTTGGAGACGGAA	600
AAACTCTTGAAAAAGGTCCTTTCAAAGGCCTCGAAGGTTATCTCGCATG	
TAGGGAGCTCCTGGAGAGATTTTCAAAGGTGGAATCGAAGGAATTCTTTG	700
CGCTTTTTTGATCAGGTGACTAACACGATAACAGGAAAAGACGCGTTTCTT	
TTGATCCAGAGACTGACAAGAATCATTCTCCACGAAAACACATGGGAAAG	800
CGTTGAAGATCAAAAAAGCGTGTCTTTCCTCGATTCAATTCTCAGGGTGA	
AGATAGCGAATCTGAACAACAACTCACTCTGATGAACATCCTCGCGATA	900
CACAGAGAGAGAAAGAGAGGTGTCAACGCTTGGAGC	

FIG. 64

MNDLIRKYAKDQLETLKRIIEKSEGISILINGEDLSYPREVSLELPEYVE	
KFPPKASDVLEIDPEGENIGIDDIRTIKDFLNYSPELYTRKYVIVHDCER	100
MTQQAANAFLKALEEPPEYAVIVLNTRRWYLLPTIKSRVFRVVVNPKE	
FRDLVKEKIGDLWEELPLLERDFKTALEAYKLGAEKLSGLMESLKVLETE	200
KLLKKVLSKGLEGYLACRELLERFSKVESKEFFALFDQVTNTITGKDAFL	
LIQRLTRIILHENTWESVEDKSVSFLDSILRVKIANLNNKLTLMNILAIH	300
RERKRGVNAWS	

FIG. 65

REPLACEMENT
SHEET

69/83

ATGTCTTTCTTCAACAAGATCATACTCATAGGAAGACTCGTGAGAGATCC	
CGAAGAGAGATACACGCTCAGCGGAACTCCAGTCACCACCTTCACCATAG	100
CGGTGGACAGGGTTCCCAGAAAGAACGCGCCGGACGACGCTCAAACGACT	
GATTTCTTCAGGATCGTCACCTTTGGAAGACTGGCAGAGTTCGCTAGAAC	200
CTATCTCACCAAAGGAAGGCTCGTTCTCGTCGAAGGTGAAATGAGAATGA	
GAAGATGGGAAACACCCACTGGAGAAAAGAGGGTATCTCCGGAGGTTGTC	300
GCAAACGTTGTTAGATTTCATGGACAGAAAACCTGCTGAAACAGTTAGCGA	
GAAGAGGAGCTGGAAATACCGGAAGAAGACTTTTCCAGCGATACCT	400
TCAGTGAAGATGAACCACCATT	

FIG. 66

MSFFNKIILIGRLVRDPEERYTLSGTPVTTFTIAVDRVPRKNAPDDAQT	
DFFRIVTFGRLEAFARTYLTKGRLVLVEGEMRMRRWETPTGEKRVSPVV	100
ANVVRFMDRKPAETVSETEEELEIPEEDFSSDTFSEDEPPF	

FIG. 67

REPLACEMENT SHEET

70/83

ATGCGTGTTCCCCCGCACAACTTAGAGGCCGAAGTTGCTGTGCTCGGAAG	
CATATTGATAGATCCGTCGGTAATAAACGACGTTCTTGAAATTTTGAGCC	100
ACGAAGATTTCTATCTGAAAAAACACCAACACATCTTCAGAGCGATGGAA	
GAGCTTTACGACGAAGGAAAACCGGTGGACGTGGTTTCCGTCTGTGACAA	200
GCTTCAAAGCATGGGAAAACCTCGAGGAAGTAGGTGGAGATCTGGAAGTGG	
CCCAGCTCGCTGAGGCTGTGCCCAGTTCTGCACACGCACTTCACTACGCG	300
GAGATCGTCAAGGAAAAATCCATTCTGAGGAACTCATTGAGATCTCCAG	
AAAAATCTCAGAAAGTGCCTACATGGAAGAAGATGTGGAGATCCTGCTCG	400
ACAACGCAGAAAAGATGATCTTCGAGATCTCAGAGATGAAAACGACAAAA	
TCCTACGATCATCTGAGAGGCATCATGCACCCGGGTGTTTGAAAACCTGGA	500
GAACCTTCAGGGAAAGAGCCAACCTTATAGAACCCGGTGTGCTCATAACGG	
GACTACCAACGGGATTCAAAAGTCTGGACAAACAGACCACAGGGTTCCAC	600
AGCTCCGATCTGGTGATAATAGCAGCGAGACCCTCCATGGGAAAACCTC	
CTTCGCACTCTCAATAGCGAGGAACATGGCTGTCAATTTGAAATCCCCG	700
TCGGAATATTTCAGTCTCGAGATGTCCAAGGAACAGCTCGCTCAAAGACTA	
CTCAGCATGGAGTCCGGTGTGGATCTTTACAGCATCAGAACAGGATACCT	800
GGATCAGGAGAAGTGGGAAAGACTCACAATAGCGGCTTCTAAACTCTACA	
AAGCACCCATAGTTGTGGACGATGAGTCACTCCTCGATCCGCGATCGTTG	900
AGGGCAAAAGCGAGAAGGATGAAAAAAGAATACGATGTAAAAGCCATTTT	
TGTCGACTATCTCCAGCTCATGCACCTGAAAGGAAGAAAAGAAAGCAGAC	1000
AGCAGGAGATATCCGAGATCTCGAGATCTCTGAAGCTCCTTGCGAGGGAA	
CTCGACATAGTGGTGATAGCGCTTTCACAGCTTTCGAGGGCCGTAGAACA	1100
GAGAGAAGACAAAAGACCGAGGCTGAGTGACCTCAGGGAATCCGGTGCGA	
TAGAACAGGACGCAGACACAGTCATCTTCATCTACAGGGAGGAATATTAC	1200
AGGAGCAAAAAATCCAAAGAGGAAAGCAAGCTTCACGAACCTCACGAAGC	
TGAAATCATAATAGGTAAACAGAGAAACGGTCCCGTTGGAACGATCACTC	1300
TGATCTTCGACCCCAGAACGGTTACGTTCCATGAAGTCGATGTGGTGCAT	
TCA	1353

FIG. 68

MRVPPHNLEAEVAVLGSILIDPSVINDVLEILSHEDFYLKKHQHIFRAME	
ELYDEGKPV DVVSVC DKLQSMGKLEEVGGDLEVAQLAEAVPSSAHALHYA	100
EIVKEKSILRKLIEISRKISESAYMEEDVEILLDNAEKMIFEISEMKTTK	
SYDHLRGIMHRVFENLENFRERANLIEPGVLITGLPTGFKSLDKQTTGFH	200
SSDLVIIAARPSMGKTSFALSIARNMAVNFEIPVGIFSLEMSKEQLAQL	
LSMESGVDLYSIRTGYLDQEKWERLTIAASKLYKAPIVVDDDESLLDPRSL	300
RAKARRMKKEYDVKAIFVDYLQLMHLKGRKESRQOEISEISRSLKLLARE	
LDIVVIALSQLSRAVEQREDKRPRLSDLRESGAIEQDADTVIFIYREEYY	400
RSKKSKEESKLHEPHEAEIIIGKQRNGPVGTTITLIFDPRTVTFHEVDVVH	
S	451

FIG. 69

REPLACEMENT SHEET

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GTGATTCCCTCGAGAGGTCATCGAGGAAATAAAAGAAAAGGTTGACATCGT	100
AGAGGTCATTTCCGAGTACGTGAATCTTACCCGGGTAGGTTCCCTCCTACA	
GGGCTCTCTGTCCCTTTTCATTCAGAAACCAATCCTTCTTTCTACGTTTCAT	200
CCGGGTTTGAAGATATAACCATTGTTTCGGCTGCGGTGCGAGTGGAGACGT	
CATCAAATTTCTTCAAGAAATGGAAGGGATCAGTTTCCAGGAAGCGCTGG	300
AAAGACTTGCCAAAAGAGCTGGGATTGATCTTTCTCTCTACAGAACAGAA	
GGGACTTCTGAATACGGAAAATACATTCGTTTGTACGAAGAAACGTGGAA	400
AAGGTACGTCAAAGAGCTGGAGAAATCGAAAGAGGCAAAGACTATTTAA	
AAAGCAGAGGCTTCTCTGAAGAAGATATAGCAAAGTTCGGCTTTGGGTAC	500
GTCCCCAAGAGATCCAGCATCTCTATAGAAGTTGCAGAAGGCATGAACAT	
AACACTGGAAGAACTTGTGAGATACGGTATCGCGCTGAAAAAGGGTGATC	600
GATTCGTTGATAGATTTCGAAGGAAGAATCGTTGTTCCAATAAAGAACGAC	
AGTGGTCATATTGTGGCTTTTGGTGGGCGTGCTCTCGGCAACGAAGAACC	700
GAAGTATTTGAACTCTCCAGAGACCAGGTATTTTTCGAAGAAGAAGACCC	
TTTTTCTCTTCGATGAGGCGAAAAAAGTGGCAAAGAGGTTGGTTTTTTTC	800
GTCATCACCGAAGGCTACTTCGACGCGCTCGCATTCAGAAAGGATGGAAT	
ACCAACGGCGGTCTGCTGTTCTTGGGGCGAGTCTTTCAGAGAGGCGATTCT	900
TAAAACTTTCGGCGTATTCGAAAAACGTCATACTGTGTTTCGATAATGAC	
AAAGCAGGCTTCAGAGCCACTCTCAAATCCCTCGAGGATCTCCTAGACTA	1000
CGAATTCAACGTGCTTGTGGCAACCCCCCTCTCCTTACAAAGACCCAGATG	
AACTCTTTTCAGAAAGAAGGAGAAGGTTTCATTGAAAAAGATGCTGAAAAAC	1100
TCGCGTTTCGTTTCGAATATTTTCTGGTGACGGCTGGTGAGGTCTTCTTTGA	
CAGGAACAGCCCCGCGGGTGTGAGATCCTACCTTTCTTTCCTCAAAGGTT	1200
GGGTCCAAAAGATGAGAAGGAAAGGATATTTGAAACACATAGAAAATCTC	
GTGAATGAGGTTTCATCTTCTCTCCAGATACCAGAAAACCAGATTTTGAA	1300
CTTTTTTTGAAAGCGACAGGTCTAACACTATGCCTGTTTCATGAGACCAAGT	
CGTCAAAGGTTTACGATGAGGGGAGAGGACTGGCTTATTTGTTTTTTGAAC	1400
TACGAGGATTTGAGGGAAAAGATTCTGGAACCTGGACTTAGAGGTACTGGA	
AGATAAAAACGCGAGGGAGTTTTTCAAGAGAGTCTCACTGGGAGAAGATT	1500
TGAACAAAGTCATAGAAAACCTTCCCAAAAGAGCTGAAAGACTGGATTTTTT	
GAGACAATAGAAAGCATTCCTCCTCCAAAGGATCCCGAGAAATTCCTCGG	1600
TGACCTCTCCGAAAAGTTGAAAATCCGACGGATAGAGAGACGTATCGCAG	
AAATAGATGATATGATAAAGAAAGCTTCAAACGATGAAGAAAGGCGTCTT	1695
CTTCTCTCTATGAAAGTGATCTCCTCAGAAAAATAAAGAGGAGG	

FIG. 70

REPLACEMENT SHEET

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MIPREVIEEIKEKVDIVEVISEYVNLTRVGSSYRALCPFHSETNPSFYVH	
PGLKIYHCFGCGASGDVIKFLQEMEGISFQEALERLAKRAGIDLSLYRTE	100
GTSEYGKYIRLYEETWKRYVKELEKSKEAKDYLSRGFSEEDIKFGFGY	
VPKRSSISIEVAEGMNITLEELVRYGIALKKGDRFVDRFEGRIVVPIKND	200
SGHIVAFGGRALGNEEPKYLNSPETRYFSKKKTLFLFDEAKKVAKEVGFF	
VITEGYFDALAFRKDGIP TAVAVLGASLSREAILKLSAYSKNVILCFDND	300
KAGFRATLKSLEDLLDYEFNVLVATPSPYKDPDEL FQKEGEGSLKKMLKN	
SRSFEYFLVTAGEVFFDRNSPAGVRSYLSFLKGWVQKMRRKGYLKHIENL	400
VNEVSSSLQIPENQILNFFESDRSNTMPVHETKSSKVYDEGRGLAYLFLN	
YEDLREKILELDLEVLEDKNAREFFKRVS LGEDLNKVIENFPKELKDWIF	500
ETIESIPPPKDPEKFLGDLSEK LKIRRIERRIAEIDDMIKKASNDEERRL	
LLSMKVDLLRKIKRR	565

FIG. 71

ATGGCTCTACACCCGGCTCACCCTGGGGCAATAATCGGGCACGAGGCCGT	
TCTCGCCCTCCTTCCCCGCCTCACCGCCCAGACCCTGCTCTTCTCCGGCC	100
CCGAGGGGGTGGGGCGGCGCACCGTGGCCCCGCTGGTACGCCTGGGGGCTC	
AACCGCGGCTTCCCCCGCCCTCCCTGGGGGAGCACCCGGACGTCTCTGA	200
GGTGGGGCCCAAGGCCCGGGACCTCCGGGGCCGGGCCGAGGTGCGGCTGG	
AGGAGGTGGCGCCCCCTCTTGGAGTGGTGCTCCAGCCACCCCCGGGAGCGG	300
GTGAAGGTGGCCATCCTGGACTCGGCCACCTCCTCACCGAGGCCCGCCGC	
CAACGCCCTCCTCAAGCTCCTGGAGGAGCCCCCTTCCTACGCCCGCATCG	400
TCCTCATCGCCCCAAGCCGCGCCACCCTCCTCCCCACCCTGGCCTCCCGG	
GCCACGGAGGTGGCATTCGCCCCCGTGCCCGAGGAGGCCCTGCGCGCCCT	500
CACCCAGGACCCGGAGCTCCTCCGCTACGCCGCCGGGGCCCCGGGCCGCC	
TCCTTAGGGCCCTCCAGGACCCGGAGGGGTACCGGGCCCGCATGGCCAGG	600
GCGCAAAGGGTCCTGAAAGCCCCGCCCTGGAGCGCCTCGCTTTGCTTCG	
GGAGCTTTTGGCCGAGGAGGAGGGGGTCCACGCCCTCCACGCCGTCTTAA	700
AGCGCCCGGAGACCTCCTTGCCCTGGAGCGGGCGCGGGAGGCCCTGGAG	
GGGTACGTGAGCCCCGAGCTGGTCCTCGCCCGGCTGGCCTTAGACTTAGA	800
GACA	

FIG. 72

MALHPAHPGAIIGHEAVLALLPRLTAQTLLFSGPEGVGRRTVARWYAWGL	
NRGFPPPSLGEHPDVLEVGP KARDLRGRAEVRLEEVAPLLEWCSSHPRER	100
VKVAILDSAHLLTEAAANALLKLL EEPSPSYARIVLIAPSRATLLPTLASR	
ATEVAFAPVPEEALRAL TQDPELLRYAAGAPGRLLRALQDPEGYRARMAR	200
AQRVLKAPPLERLALLRELLAE EEEGVHALHAVLKRPEHLLALERAREALE	
GYVSPELVLARLALDLET	268

FIG. 73

REPLACEMENT
SHEET

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ATGCTGGACCTGAGGGAGGTGGGGGAGGCGGAGTGGAAGGCCCTAAAGCC	
CCTTTTGGAAAGCGTGCCCGAGGGCGTCCCCGTCTCCTCCTGGACCCTA	100
AGCCAAGCCCCCTCCCGGGCGGCCTTCTACCGGAACCGGGAAAGGCGGGAC	
TTCCCCACCCCCAAGGGGAAGGACCTGGTGCGGCACCTGGAAAACCGGGC	200
CAAGCGCCTGGGGCTCAGGCTCCCGGGCGGGGTGGCCCAGTACCTGGCCT	
CCCTGGAGGGGGACCTCGAGGCCCTGGAGCGGGAGCTGGAGAAGCTTGCC	300
CTCCTCTCCCCACCCCTCACCCCTGGAGAAGGTGGAGAAGGTGGTGGCCCT	
GAGGCCCCCCCCCTCACGGGCTTTGACCTGGTGCGCTCCGTCTCCTGGAGAAGG	400
ACCCCAAGGAGGCCCTCCTGCGCCTAGGCGGCCTCAAGGAGGAGGGGGAG	
GAGCCCCCTCAGGCTCCTCGGGGCCCTCTCCTGGCAGTTCGCCCTCCTCGC	500
CCGGGCCTTCTTCTCCTCCCGGAAAACCCCAAGGAGGAGGACC	
TCGCCCCGCTCGAGGCCACCCCTACGCCGCCCGCCGCGCCCTGGAGGCG	600
GCGAAGCGCCTCACGGAAGAGGCCCTCAAGGAGGCCCTGGACGCCCTCAT	
GGAGGCGGAAAAGAGGGCCAAGGGGGGGAAAGACCCGTGGCTCGCCCTGG	700
AGGCGGCGGTCTCCGCCTCGCCCCGTTGA	

FIG. 74

MVIAFTGDPFLAREALLEEARLRGLSRFTEPTPEALAQALAPGLFGGGGA	
MLDLREVGEAEWKALKPLLESVPEGVPVLLLDPKPSPSRAAFYRNRERD	100
FPTPKGKDLVRHLENRAKRLGLRLPGGVAQYLASLEGDLEALERELEKLA	
LLSPPLTLEKVEKVVALRPPLTGFDLVRVLEKDPKEALLRLGGLKEEGE	200
EPLRLLGALSWQFALLARAFFLLRENPRPKEEDLARLEAHPYAARRALEA	
AKRLTEEALKEALDALMEAEKRAKGGKDPWLALAAVLRLAR	292

FIG. 75

REPLACEMENT
SHEET

74/83

ATGGCTCGAGGCCTGAACCGCGTTTTCTCATCGGCGCCCTCGCCACCCG	
GCCGGACATGCGCTACACCCCGCGGGGCTCGCCATTTTGGACCTGACCC	100
TCGCCGGTCAGGACCTGCTTCTTTCCGATAACGGGGGGGAACCGGAGGTG	
TCCTGGTACCACCGGGTGAGGCTCTTAGGCCGCCAGGCGGAGATGTGGGG	200
CGACCTCTTGACCAAGGGCAGCTCGTCTTCGTGGAGGGCCGCCTGGAGT	
ACCGCCAGTGGGAAAGGGAGGGGGAGAAGCGGAGCGAGCTCCAGATCCGG	300
GCCGACTTCCGGACCCCCCTGGACGACCGGGGGAAGAAGCGGGCGGAGGAC	
AGCCGGGGCCAGCCCAGGCTCCGCGCCGCCCTGAACCAGGTCTTCTCAT	400
GGGCAACCTGACCCGGGACCCGGAACCTCCGCTACACCCCCCAGGGCACCG	
CGGTGGCCCCGGCTGGGCCTGGCGGTGAACGAGCGCCGCCAGGGGGCGGAG	500
GAGCGCACCCACTTCGTGGAGGTTTCAGGCCTGGCGCGACCTGGCGGAGTG	
GGCCGCCGAGCTGAGGAAGGGCGACGGCCTTTTCGTGATCGGCAGGTTGG	600
TGAACGACTCCTGGACCAGCTCCAGCGGCGAGCGGCGCTTCCAGACCCGT	
GTGGAGGCCCTCAGGCTGGAGCGCCCCACCCGTGGACCTGCCCAGGCCTG	700
CCCAGGCCGCGGGAACAGGTCCCGCGAAGTCCAGACGGGTGGGGTGGACA	
TTGACGAAGGCTTGGAAGACTTTCGCGCGGAGGAGGATTTGCCGTTTTGA	800
GCACGAA	

FIG. 76

MARGLNRVFLIGALATRPDMRYTPAGLAILDLTLAGQDLLLLSDNGGEPEV	
SWYHRVRLLRQAEMWGDLLDQGQLVFVEGRLEYRQWEREGEKRSELQIR	100
ADFLDPLDDRGKKRAEDSRGQPRRLRAALNQVFLMGNLTRDPELRYTPQGT	
AVARLGLAVNERRQGAEERTHFVEVQAWRDLAEWAAELRKGDGLFVIGRL	200
VNDSWTSSSGERRFQTRVEALRLERPTRGPAQACPGRNRNSREVQTGGVD	
IDEGLEDFPPEEDLPF	266

FIG. 77

REPLACEMENT
SHEET

75/83

AATTCCGACATTTCAATTGAATCGTTTATTCCGCTTGAAAAAGAAGGCAA	
GTTGCTCGTTGATGTGAAAAGACCGGGGAGCATCGTACTGCAGGCGCGCT	100
TTTTCTCTGAAATCGTGAAAAAACTGCCGCAACAAACGGTGGAATCGAA	
ACGGAAGACAACTTTTTGACGATCATCCGCTCGGGGCACTCAGAATTCCG	200
CCTCAATGGGCTAAACGCCGACGAATATCCGCGCCTGCCGCAAATTGAAG	
AAGAAAACGTGTTTCAAATCCCGGCTGATTTATTGAAAACCGTGATTTCGG	300
CAAACGGTGTTTCGCCGTTTCTACATCGGAAACGCGCCCAATCTTGACAGG	
TGTCAACTGGAAAGTTGAACATGGCGAGCTTGTCTGCACAGCGACCGACA	400
GTCATCGCTTAGCCATGCGCAAAGTGAAAATTGAGTCGGAAAATGAAGTA	
TCATACAACGTCGTCATCCCTGGAAAAAGTCTTAATGAGCTCAGCAAAAT	500
TTTGATGACGGCAACCACCCGGTGACATCGTCATGACAGCCAATCAAG	
TGCTATTTAAGGCCGAGCACCTTCTCTTCTTTTCCCGGCTGCTTGACGGC	600
AACTATCCGGAGACGGCCCGCTTGATTCCAACAGAAAGCAAACGACCAT	
GATCGTCAATGCAAAAGAGTTTCTGCAGGCAATCGACCGAGCGTCCTTGC	700
TTGCTCGAGAAGGAAGGAACAACGTTGTGAAACTGACGACGCTTCCTGGA	
GGAATGCTCGAAATTTCTTCGATTTCTCCGAGATCGGGAAAGTGACGGAG	800
CAGCTGCAAACGGAGTCTCTTGAAGGGGAAGAGTTGAACATTTTCGTTTCAG	
CGCGAAATATATGATGGACGCGTTGCGGGCGCTTGATGGAACAGACATTT	900
CAAATCAGCTTCACTGGGGCCATGCGGCCGTTCTGTTGCGCCCGCTTCA	
ACCGATTGATGCTTCAGCTCATTTTGCCGGTGAGAACATAT	992

FIG. 78

NSDISIIESFIPLEKEGKLLVDVKRPGSIVLQARFFSEIVKKLPQQTVEI	
ETEDNFLTIIRSGHSEFRLNGLNADEYPRLPQIEEENVFQIPADLLKTVI	100
RQTVFAVSTSETRPILTGVDNWKVEHGELVCTATDSHRLAMRKVKIIESEN	
EVSYNVVIPGKSLNELSKIILDDGNHPVDIVMTANQVLFKAHLLFFSRL	200
LDGNYPETARLIPTESKTTMIVNAKEFLQAI DRASLLAREGRNNVVKLTT	
LPGGMLEISSISPEIGKVTEQLQTESLEGEELNISFSAKYMMDALRALDG	300
TDIQISFTGAMRPFLRLPLHTDSMLQLILPVRTY	

FIG. 79

REPLACEMENT
SHEET

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ATGATTAACCGCGTCATTTTGGTCGGCAGGTTAACGAGAGATCCGGAGTT	
GCGTTACACTCCAAGCGGAGTGGCTGTTGCCACGTTTACGCTCGCGGTCA	100
ACCGTCCGTTTACAAATCAGCAGGGCGAGCGGGAAACGGATTTTATTCAA	
TGTGTCGTTTGGCGCCGCCAGGCGGAAAACGTCGCCAACTTTTGTAAAAA	200
GGGGAGCTTGGCTGGTGTTCGATGGCCGACTGCAAACCCGCAGCTATGAAA	
ATCAAGAAGGTCGGCGTGTGTACGTGACGGAAGTGGTGGCTGATAGCGTC	300
CAATTTCTTGAGCCGAAAGGAACGAGCGAGCAGCGAGGGGCGACAGCAGG	
CGGCTACTATGGGGATCCATTCCCATTCGGGCAAGATCAGAACCACCAAT	400
ATCCGAACGAAAAAGGGTTTGGCCGCATCGATGACGATCCTTTTCGCCAAT	
GACGGCCAGCCGATCGATATTTCTGATGATGATTTGCCGTTT	492

FIG. 80

MINRVILVGRLTRDPELRYTPSGVAVATFTLAVNRPFTNQSYENQEGRRV	
YVTEVVADSVQFLEPKGTSEQRGATAGGYQGERETDFIQCVVWRRQAEN	100
VANFLKKGSLAGVDGRLQTRGDPFPFGQDQNHQYPNEKGFGRIDDDPFAN	
DGQPIDISDDDLPF	164

FIG. 81

REPLACEMENT SHEET

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ATGCTGGAACGCGTATGGGGAAACATTGAAAAACGGCGTTTTTCTCCCCT	
TTATTTATTATACGGCAATGAGCCGTTTTTTATTAACGGAAACGTATGAGC	100
GATTGGTGAACGCAGCGCTTGGCCCCGAGGAGCGGGAGTGGAACCTGGCT	
GTGTACGACTGCGAGGAAACGCCGATCGAGGCGGCGCTTGAGGAGGCCGA	200
GACGGTGCCGTTTTTTCGGCGAGCGGCGTGTCATTCTCATCAAGCATCCAT	
ATTTTTTTTACGTCTGAAAAAGAGAAGGAGATCGAACATGATTTGGCGAAG	300
CTGGAGGCGTACTTGAAGGCGCCGTCGCCGTTTTTCGATCGTCGTCTTTTT	
CGCGCCGTACGAGAAGCTTGATGAGCGAAAAAAATTACGAAGCTCGCCA	400
AAGAGCAAAGCGAAGTCGTCATCGCCGCCCCGCTCGCCGAAGCGGAGCTG	
CGTGCCTGGGTGCGGCGCCGCATCGAGAGCCAAGGGGCGCAAGCAAGCGA	500
CGAGGCGATTGATGTCCTGTTGCGGCGGGCCGGGACGCAGCTTTCGCCT	
TGGCGAATGAAATCGATAAATTGGCCCTGTTTGCCGGATCGGGCGGAACC	600
ATCGAGGCGGCGGCGGTTGAGCGGCTTGTCGCCCGCACGCCGGAAGAAAA	
CGTATTTGTGCTTGTCGAGCAAGTGGCGAAGCGCGACATTCCAGCAGCGT	700
TGCAGACGTTTTTATGATCTGCTTGAAAACAATGAAGAGCCGATCAAAATT	
TTGGCGTTGCTCGCCGCCCATTTCCGCTTGCTTTCGCAAGTGAAATGGCT	800
TGCCTCCTTAGGCTACGGACAGGCGCAAATTGCTGCGGCGCTCAAGGTGC	
ACCCGTTCCGCGTCAAGCTCGCTCTTGCTCAAGCGGCCCGCTTCGCTGAC	900
GGAGAGCTTGCTGAGGCGATCAACGAGCTCGCTGACGCCGATTACGAAGT	
GAAAAGCGGGGCGGTCGATCGCCGGTTGGCCGTTGAGCTGCTTCTGATGC	1000
GCTGGGGCGCCCGCCCGGCGCAAGCGGGGCGCCACGGCCGGCGG	

FIG. 82

MLERVWGNIEKRRFSPLYLLYGNEPFLLTETYERLVNAALGPEEREWNLA	
VYDCEETPIEAALEEAETVPFFGERRVILIKHPYFFTSEKEKEIEHDLAK	100
LEAYLKAPSPFSIVVFFAPYEKLDERKKITKLAKSEQSEVVIAAPLAEAE	
RAWVRRRIESQGAQASDEAIDVLLRRAGTQLSALANEIDKLALFAGSGGT	200
IEAAVERLVARTPEENVFVLVEQVAKRDI PAALQTFYDLLENNEEPIKI	
LALLAAHFRLLSQVKWLASLGYGQAQIAAALKVHPFRVKLALAQAARFAD	300
GELAEAINELADADYEVKSGAVDRRLAVELLMLRWGARPAQAGRHGR	

FIG. 83

REPLACEMENT SHEET

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ATGCGATGGGAACAGCTAGCGAAACGCCAGCCGGTGGTGGCGAAAATGCT	
GCAAAGCGGCTTGGA AAAAGGGCGGATTTCTCATGCGTACTTGTTTGAGG	100
GGCAGCGGGGGACGGGCA AAAAAGCGGCCAGTTTGTTGTTGGCGAAACGT	
TTGTTTTGTCTGTCCCCAATCGGAGTTTCCCCGTGTCTAGAGTGCCGCAA	200
CTGCCGGCGCATCGACTCCGGCAACCACCCTGACGTCCGGGTGATCGGCC	
CAGATGGAGGATCAATCA AAAAAGGAACAAATCGAATGGCTGCAGCAAGAG	300
TTCTCGAAAACAGCGGTTCGAGTCGGATAAAAAAATGTACATCGTTGAGCA	
CGCCGATCAAATGACGACAAGCGCTGCCAACAGCCTTCTGAAATTTTTTG	400
AAGAGCCGCATCCGGGGACGGTGGCGGTATTGCTGACTGAGCAATACCAC	
CGCCTGCTAGGGACGATCGTTTCCCGCTGTCAAGTGCTTTCGTTCCGGCC	500
GTTGCCGCCGGCAGAGCTCGCCCAGGGACTTGTCGAGGAGCACGTGCCGT	
TGCCGTTGGCGCTGTTGGCTGCCCATTTGACAAACAGCTTCGAGGAAGCA	600
CTGGCGCTTGCCAAAGATAGTTGGTTTGCCGAGGCGCGAACATTAGTGCT	
ACAATGGTATGAGATGCTGGGCAAGCCGGAGCTGCAGCTTTTGTTTTTCA	700
TCCACGACCGCTTGTTTCCGCATTTTTTTGAAAGCCATCAGCTTGACCTT	
GGACTTG	757

FIG. 84

MRWEQLAKRQPVVAKMLQSGLEKGRISHAYLFEGQRTGKKAASLLLAKR	
LFCLSPIGVSPCLECRNCRRIDSGNHDPDVRVIGPDGGSIKKEQIEWLQQE	100
FSKTAVESDKKMYIVEHADQMTTSAANSLLKFLEEPHPGTVAVLLTEQYH	
RLLGTIVSRCQVLSFRPLPPAELAQGLVEEHVPLPLALLAAHLTNSFEEA	200
LALAKDSWFAEARTLVLQWYEMLGKPELQLLFFIHDRLFPHFLESHQLDL	
GL	252

FIG. 85

REPLACEMENT SHEET

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GTGGCATAACCAAGCGTTATATCGCGTGTTTCGGCCGCAGCGCTTTGCGGA	100
CATGGTCGGCCAAGAACACGTGACCAAGACGTTGCAAAGCGCCCTGCTTC	
AACATAAAATATCGCACGCTTACTTATTTTCCGGCCCGCGCGGTACAGGA	200
AAAACGAGCGCAGCGAAAAATTTTCGCCAAGGCGGTCAACTGTGAACAGGC	
GCCAGCGGCGGAGCCATGCAATGAGTGTCAGCTTGCCCTCGGCATTACGA	300
ATGGAACGGTTCCCGATGTGCTGGAAATTGACGCTGCTTCCAACAACCGC	
GTCGATGAAATTCGTGATATCCGTGAGAAGGTGAAATTTGCGCCAACGTC	400
GGCCCGCTACAAAGTGTATATCATCGACGAGGTGCATATGCTGTGATCG	
GTGCGTTTAACGCGCTGTTGAAAACGTTGGAGGAGCCGCCGAAACACGTC	500
ATTTTCATTTTGGCCACGACCGAGCCGCACAAAATTCGGGCGACGATCAT	
TTCCCGCTGCCAACGGTTCGATTTTCGCCGCATCCCGCTTCAGGCGATCG	600
TTTCACGGCTAAAGTACGTCGCAAGCGCCCAAGGTGTCGAGGCGTCAGAT	
GAGGCATTGTCCGCCATCGCCCGTGCTGCAGACGGGGGGATGCGCGATGC	700
GCTCAGCTTGCTTGATCAAGCCATTTTCGTTTCAGCGACGGGAAACTTCGGC	
TCGACGACGTGCTGGCGATGACCGGGGCTGCATCATTTGCCGCCTTATCG	800
AGCTTCATCGAAGCCATCCACCGCAAAGATACAGCGGCGGTTCTTCAGCA	
CTTGGAACGATGATGGCGCAAGGGAAAGATCCGCATCGTTTGGTTGAAG	900
ACTTGATTTTGTACTATCGCGATTTATTGCTGTACAAAACCGCTCCCTAT	
GTGGAGGGAGCGATTCAAATTGCTGTGCTTGACGAAGCGTTCACTTCACT	1000
GTCGGAAATGATTCCGGTTTCCAATTTATACGAGGCCATCGAGTTGCTGA	
ACAAAAGCCAGCAAGAGATGAAGTGGACAAACCACCCGCGCCTTCTGTTG	1100
GAAGTGCGCTTGTGAAACTTTGCCATCCATCAGCCGCCGCCCGTCGCT	
GTCGGCTTCCGAGTTGGAACCGTTGATAAAGCGGATTGAAACGCTGGAGG	1200
CGGAATTGCGGCGCCTGAAGGAACAACCGCCTGCCCTCCGTCGACCGCC	
GCGCCGGTGAAAAAACTGTCCAAACCGATGAAAACGGGGGGATATAAAGC	1300
CCCGGTTGGCCGCATTTACGAGCTGTTGAAACAGGCGACGCATGAAGATT	
TAGCTTTGGTGAAAGGATGCTGGGCGGATGTGCTCGACACGTTGAAACGG	1400
CAGCATAAAGTGTCGCACGCTGCCTTGCTGCAAGAGAGCGAGCCGGTTGC	
AGCGAGCGCCTCAGCGTTTGTATTAAAATTCAAATACGAAATCCACTGCA	1500
AAATGGCGACCGATCCCACAAGTTCGGTCAAAGAAAACGTCGAAGCGATT	
TTGTTTGAGCTGACAAACCGCCGCTTTGAAATGGTAGCCATTCCGGAGGG	1600
AGAATGGGGAAAAATAAGAGAAGAGTTCATCCGCAATAAGGACGCCATGG	
TGGAAAAAAGCGAAGAAGATCCGTTAATCGCCGAAGCGAAGCGGCTGTTT	1677
GGCGAAGAGCTGATCGAAATTAAAGAA	

FIG. 86

REPLACEMENT SHEET

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VAYQALYRVFRPQRFADMVGQEHVTKTLQSALLQHKISHAYLFSGPRGTG	
KTSAAKIFAKAVNCEQAPAAEPCNECPACLGITNGTVPDVLEIDAASNNR	100
VDEIRDIREKVKFAPTSARYKVYIIDEVHMLSIGAFNALLKTLEPPKHV	
IFILATTEPHKIPATIIISRCQRFDFRRIPLQAIVSRLKYVASAQGVEASD	200
EALSAIARAADGGMRDALSLLDQAISFSDGKLRLDDVLAMTGAASFAALS	
SFIEAIHRKDTAAVLQHLETMMAQGKDPHRLVEDLILYYRDLLLYKTAPY	300
VEGAIQIAVVDEAFTSLSEMI PVSNLYEAI ELLNKSQQEMKWTNHPRLLL	400
EVALVKLCHPSAAAPSLSASELEPLIKRIETLEAELRRLKEQPPAPPSTA	
APVKKLSKPMKTGGYKAPVGRIYELLKQATHEDLALVKG CWADVLDTLKR	500
QHKVSHAALLQESEPVAASASAFVLKFKYEIHCKMATDPTSSVKENVEAI	
LFELTNRRRFEMVAIPEG EWGKIREEFIRNKDAMVEKSEEDPLIAEAKRLF	559
GEELIEIKE	

FIG. 87

REPLACEMENT SHEET

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ATGGTGACAAAAGAGCAAAAAGAGCGGTTTCTCATCCTGCTTGAGCAGCT	100
GAAGATGACGTTCGGACGAATGGATGCCGCATTTTCGTGAGGCAGCCATTC	200
GCAAAGTCGTGATCGATAAAGAGGAGAAAAGCTGGCATTTTTATTTTCAG	300
TTGACAAACGTGCTGCCGGTTCATGTATACAAAACGTTTGCCGATCGGCT	400
GCAGACGGCGTTCCGCCATATCGCCGCCGTCCGCCATACGATGGAGGTCG	500
AAGCGCCGCGCGTAACCTGAGGCGGATGTGCGAGGCGTATTGGCCGCTTTGC	600
CTTGCCGAGCTGCAAGAAGGCATGTCGCCGCTTGTCGATTGGCTCAGCCG	700
GCAGACGCCTGAGCTGAAAGGAAACAAGCTGCTTGTCGTTGCCCGCCATG	800
AAGCGGAAGCGCTGGCGATCAAACGGCGGTTTCGCCAAAAAATCGCTGAT	900
GTGTACGCTTCGTTTGGGTTTCCCCCCTTCAGCTTGACGTCAGCGTCGA	1000
GCCGTCCAAGCAAGAAATGGAACAGTTTTTGGCGCAAAAACAGCAAGAGG	1100
ACGAAGAGCGAGCGCTTGCTGTACTGACCGATTTAGCGAGGGAAGAAGAA	1200
AAGGCCGCGTCTGCGCCGCGTCCGGTCCGCTTGTCATCGGCTATCCGAT	1300
CCGCGACGAGGAGCCGGTGCGGCGGCTTGAAACGATCGTCGAAGAAGAGC	1400
GGCGCGTTCGTTGTGCAAGGCTATGTATTTGACGCCGAAGTGAGCGAATTA	1500
AAAAGCGGCCGCGACGCTGTTGACCATGAAAATCACAGATTACACGAACTC	1600
GATTTTAGTCAAAATGTTCTCGCGCGACAAAGAGGACGCCGAGCTTATGA	1700
GCGGCGTCAAAAAGGCATGTGGGTGAAAGTGCGCGGCAGCGTGCAAAAC	1800
GATACGTTTCGTCCGTGATTTGGTTCATCATCGCCAACGATTTGAACGAAAT	1900
CGCCGCAAACGAACGGCAAGATACGGCGCCGGAAGGGGAAAAGAGGGTCG	2000
AGCTCCATTTGCATACCCCGATGAGCCAAATGGACGCGGTCACCTCGGTG	2100
ACAAAACCTCATTTGAGCAAGCGAAAAAATGGGGGCATCCGGCGATCGCCGT	2200
CACCGACCATGCCGTTGTTTCAGTCGTTTCCGGAGGCCTACAGCGCGGCGA	
AAAAACACGGCATGAAGGTCATTTACGGCCTTGAGGCGAACATCGTCGAC	
GATGGCGTGCCGATCGCCTACAATGAGACGCACCGCCGTCTTTCGGAGGA	
AACGTACGTCGTCTTTGACGTCGAGACGACGGGCCTGTCGGCTGTGTACA	
ATACGATCATTTGAGCTGGCGGCGGTGAAAGTGAAAGACGGCGAGATCATC	
GACCGATTTCATGTCGTTTGCCAACCCTGGACATCCGTTGTCGGTGACAAC	
GATGGAGCTGACTGGGATCACCGATGAGATGGTGAAAGACGCCCCGAAGC	
CGGACGAGGTGCTAGCCCGTTTTTGTGACTGGGCCGGCGATGCGACGCTT	
GTTGCCCCACAACGCCAGCTTTGACATCGGTTTTTTTAAACGCGGGCCTCGC	
TCGCATGGGGCGCGGCAAAATCGCGAATCCAGTCATCGATACGCTCGAGC	
TGGCCCGTTTTTTTATACCCGGATTTGAAAAACCATCGGCTCAATACATTG	
TGCAAAAAATTTGACATTGAATTGACGCAGCATCACCGCGCCATCTACGA	
CGCGGAGGCGACCGGGCATTTGCTTATGCGGCTGTTGAAGGAAGCGGAAG	
AGCGCGGCATACTGTTTCATGACGAATTAAACAGCCGCACGCACAGCGAA	
GCGTCCTATCGGCTTGCGCGCCCCGTTCATGTGACGCTGTTGGCGCAAAA	
CGAGACTGGATTGAAAAATTTGTTCAAGCTTGTGTCAATTGTTCGCACATTC	
AATATTTTTCACCGTGTGCCGCGCATCCCGCGCTCCGTGCTCGTCAAGCAC	
CGCGACGGCCTGCTTGTCGGCTCGGGCTGCGACAAAGGAGAGCTGTTTGA	
CAACTTGATCCAAAAGGCGCCGGAAGAAGTCGAAGACATCGCCCGTTTTT	
ACGATTTTCTTGAAGTGCATCCGCCGGACGTGTACAAGCCGCTCATCGAG	
ATGGATTATGTGAAAGACGAAGAGATGATCAAAAACATCATCCGCAGCAT	
CGTCGCCCTTGGTGAGAAGCTTGACATCCCGGTTGTCGCCACTGGCAACG	

FIG. 88A

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TCCATTACTTGAACCCAGAAGATAAAATTTACCGGAAAATCTTAATCCAT	
TCGCAAGGCGGGGCGAATCCGCTCAACCGCCATGAACTGCCGGATGTATA	2300
TTTCCGTACGACGAATGAAATGCTTGACTGCTTCTCGTTTTTAGGGCCGG	
AAAAAGCGAAGGAAATCGTCGTTGACAACACGCAAAAAATCGCTTCGTTA	2400
ATCGGCGATGTCAAGCCGATCAAAGATGAGCTGTATACGCCGCGCATTTGA	
AGGGGCGGACGAGGAAATCAGGGAAATGAGCTACCGGCGGGCGAAGGAAA	2500
TTTACGGCGACCCGTTGCCGAAACTTGTTGAAGAGCGGCTTGAGAAGGAG	
CTAAAAAGCATCATCGGCCATGGCTTTGCCGTCATTTATTTGATCTCGCA	2600
CAAGCTTGTGAAAAAATCGCTCGATGACGGCTACCTTGTCGGGTTCGCGCG	
GATCGGTTCGGCTCGTCGTTTGTTCGCGACGATGACGGAAATCACCGAGGTC	2700
AATCCGCTGCCGCCGCATTACGTTTGCCCGAACTGCAAGCATTCGGAGTT	
CTTTAACGACGGTTCAGTCGGCTCAGGGTTTGATTTGCCGGATAAAAACT	2800
GCCCCGCGATGTGGGACGAAATACAAGAAAGACGGGCACGACATCCCGTTT	
GAGACGTTTCTCGGCTTTAAAGGCGACAAAGTGCCGGATATCGACTTGAA	2900
CTTTTCCGGCGAATACCAGCCGCGCGCCACAACATAACGAAAGTGCTGT	
TTGGCGAAGACAACGTCTACCGCGCCGGGACGATTGGCACGGTCGCTGAC	3000
AAAACGGCGTACGGATTTGTCAAAGCGTATGCGAGCGACCATAACTTAGA	
GCTGCGCGGCGCGGAAATCGACGGCTCGCGGCTGGCTGCACCGGGGTGAA	3100
GCGGACGACCGGGCAGCATCCGGGCGGCATCATCGTCGTCCCGGATTATA	
TGGAAATTTACGATTTTACGCCGATTCAATATCCGGCCGATGACACGTCC	3200
TCTGAATGGCGGACGACCCATTTTCGACTTCCATTCGATCCACGACAATTT	
GTTGAAGCTCGATATTCTCGGGCACGACGATCCGACGGTCATTCGCATGC	3300
TGCAAGATTTAAGCGGCATCGATCCGAAAACGATCCCGACCGACGACCCG	
GATGTGATGGGCATTTTTCAGCAGCACCGAGCCGCTTGGCGTTACGCCGGA	3400
GCAAATCATGTGCAATGTCGGCACGATCGGCATTCCGGAGTTTGGCACGC	
GCTTTCGTTTCGGCAAATGTTGGAAGAGACAAGGCCAAAAACGTTTTCCGAA	3500
CTCGTGCAAATTTCCGGCTTGTCGCGACGGCACCGATGTGTGGCTCGGCAA	
CGCGCAAGAGCTCATTTCAAACGGCACGTGTACGTTATCGGAAGTCATCG	3600
GCTGCCGCGACGACATTATGGTCTATTTGATTTACCGCGGGCTCGAGCCG	
TCGCTCGCTTTTAAATCATGGAATCCGTGCGCAAAGGAAAAGGCTTAAC	3700
GCCGGAGTTTGAAGCAGAAATGCGCAAACATGACGTGCCGGAGTGGTACA	
TCGATTCATGCAAAAAAATCAAGTACATGTTCCCGAAAGCGCACGCCGCC	3800
GCCTACGTGTTAATGGCGGTGCGCATCGCCTACTTTAAGGTGCACCATCC	
GCTTTTGTATTACGCGTCGTACTTTACGGTGCGGGCGGAGGACTTTGACC	3900
TTGACGCCATGATCAAAGGATCACCCGCCATTCGCAAGCGGATTGAGGAA	
ATCAACGCCAAAGGCATTCAGGCGACGGCGAAAGAAAAAAGCTTGCTCAC	4000
GGTTCTTGAGGTGGCCTTAGAGATGTGCGAGCGCGGCTTTTCCTTTAAAA	
ATATCGATTTGTACCGCTCGCAGGCGACGGAATTCGTTCATTGACGGCAAT	4100
TCTCTCATTCGCCCGTTCAACGCCATTCCGGGGCTTGGGACGAACGTGGC	
GCAGGCGATCGTGCGCGCCCGCGAGGAAGGCGAGTTTTTGTGCAAGGAGG	4200
ATTTGCAACAGCGCGGCAAATTGTGCGAAAACGCTGCTCGAGTATCTAGAA	
AGCCGCGGCTGCCTTGACTCGCTTCCAGACCATAACCAGCTGTCGCTGTT	4300

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FIG. 88B

REPLACEMENT SHEET

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MVTKEQKERFLILLEQLKMTSDEWMPHFREAAIRKVVIDKEEKSWHFYFQ	100
FDNVLPVHVYKTFADRLQTAFRHIAAVRHTMEVEAPRVTEADVQAYWPLC	
LAELQEGMSPLVDWLSRQTPELKGNKLLVVARHEAEALAIKRRFAKKIAD	200
VYASFGFPPLQLDVSVEPSKQEMEQLAQKQEQEDEERALAVLTDLAREEE	
KAASAPPSGPLVIGYPIDEEPVRRLLETIVEEERRVVVQGYVFDAEVSEL	300
KSGRTLITMKITDYTNLSILVKMFSRDKEDAELMSGVKKGMWVKVRSVQN	
DTFVRDLVLIANDLNEIAANERQDTAPEGEKRVELHLHTPMSQMDAVTSV	400
TKLIEQAKKWGHPAIAVTDHAVVQSFPEAYSAAKKHGMKVIYGLEANIVD	
DGVPIAYNETHRRLSEETYVVFVETTGLSAVYNTIIELAAVKVKDGEII	500
DRFMSFANPGHPLSVTTMELTGITDEMVKDAPKPDEVLARFVDWAGDATL	
VAHNASFDIGFLNAGLARMGRGKIANPVIDTLELARFLYPDLKNHRLNTL	600
CKKFDIELTQHHRAIYDAEATGHLLMRLLEAEERGILFHDELNSRTHSE	
ASYRLARPFHVTLTLLAQNETGLKNLFLKLVSLSHIQYFHRVPRIPRSVLVKH	700
RDGLLVGSGCDKGELFDNLIQKAPEEVEDIARFYDFLEVHPPDVYKPLIE	
MDYVKDEEMIKNIIRSIVALGEKLDIPVVATGNVHYLNPEDKIYRKILIH	800
SQGGANPLNRHELDPVYFRTTNEMLDCFSFLGPEKAKEIVDNTQKIASL	
IGDVKPIKDELYTPRIEGADEEIREMSYRRAKEIYGDPLPKLVEERLEKE	900
LKSIIGHGFAVIYLI SHKLVKKSLLDDGYLVGSRGSSVGFVATMTEITEV	
NPLPPHYVCPNCKHSEFFNDGSGVSGFDLPDKNCPRCGTTYKKDGHDI PF	1000
ETFLGFKGDKVPDIDLNFSGEYQPRAHNYTKVLFGEDNVYRAGTIGTVAD	
KTAYGFVKAYASDHNLELRGAEIDLAAAGCTGVKRTTGQHPGGIIVVPDYM	1100
EIYDFTPIQYPADDTSSSEWRTHFDFHSHIDNLLKLDILGHDDPTVIRML	
QDLSGIDPKTIPTDDPDVMGIFSSTEPLGVTPEQIMCNVGTIGIPEFGTR	1200
FVRQMLEETRPKTFSELVQISGLSHGTDVWLGNALQELIQNGTCTLSEVIG	
CRDDIMVYLIYRGLEPSLAFKIMESVRKGKGLTPEFEAEMRKHDVPEWYI	1300
DSCCKIKYMFPAHAAA YVLMVRIAYFKVHHPLLYYASYFTVRAEDFDL	
DAMIKGSPAIRKRIEEINAKGIQATAKEKSLLTVLEVALEMCEGFSFKN	1400
IDLYRSQATEFVIDGNSLI PPFNAIPGLGTNVAQAIVRAREEGEFLSKED	
LQQRGKLSKTLLEYLESRGCLDSLPHNQLSLF	

FIG. 89